Railway Age

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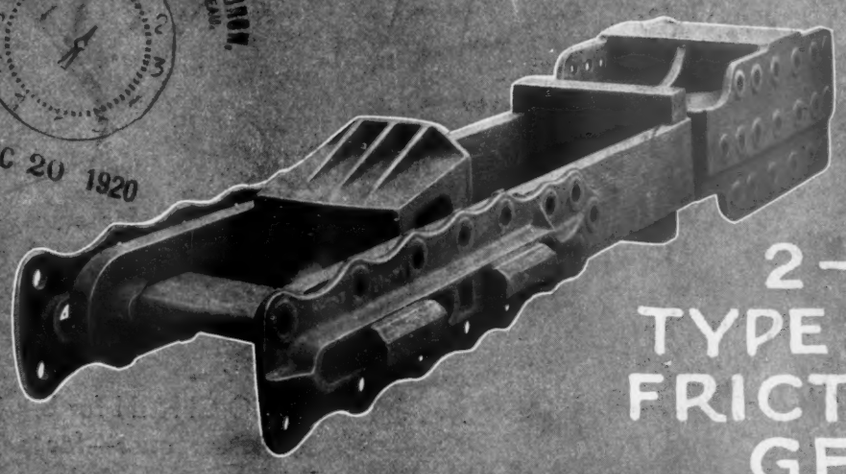

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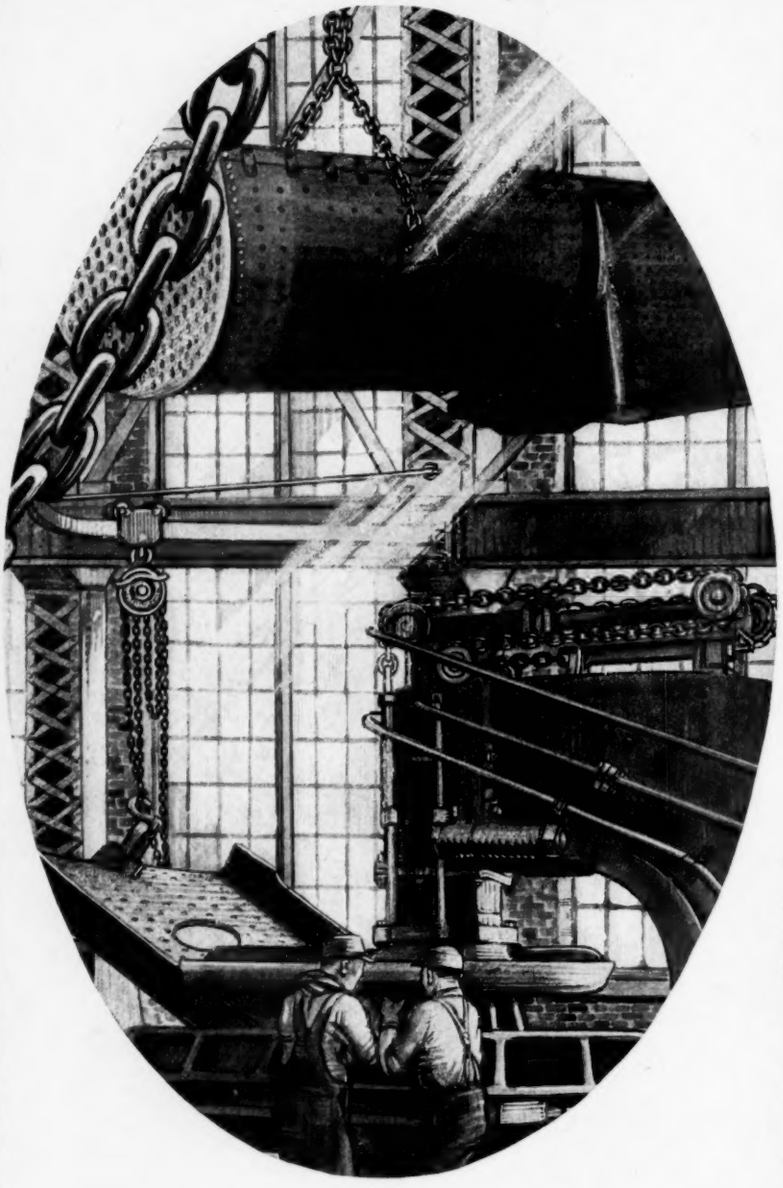

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EDITORIAL

Railway Age

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The Blindness of Virtue

The management of a certain small railroad operating in a territory exposed to unusually rigorous winters was recently confronted with a considerable increase in the cost of locomotive fuel due to an unavoidable increase in the contract price of coal at the mines. The management appreciated the necessity for economies that would tend to counteract this increase in the cost of fuel and at once instructed that all fuel supervisors and other officers, whose salaries were charged to the fuel account, be laid off. It would be difficult to cite a more flagrant exposition of the want of plain common sense, and the total absence of a consistent and constructive attitude toward the whole fuel problem that has characterized the conduct of many railroads during a period in which the cost of locomotive fuel has doubled and tripled. If the management of this particular railroad believes that a fuel supervisor cannot save enough coal to pay his salary, why did they pension these men for months preceding the rise in the price of coal? There are many fuel supervisors who are not applying themselves to the extent to which they are capable but in nine cases out of ten this is due to the absence of a definite objective, the lack of organized supervision under competent direction and failure on the part of the management to exercise a constructive and consistent policy toward the fuel problem.

Motor Cars in Trap Car Service

In our last issue we referred to the use of motor trucks for the handling of less than carload freight in interchange between railroads as a means of relieving congestion on the tracks in terminals. Closely related to this is the handling of freight between outlying freight stations and central points of assembly. In almost all of the larger cities, it is the practice for a railway to maintain freight stations to serve local industrial areas. The tonnage received at these individual stations is seldom sufficient to enable cars to be loaded direct for many points. To secure satisfactory loading of cars it is therefore the common practice to move this freight in trap cars to a central freight station or transfer platform where it is consolidated with that from other stations into full cars for movement to destination. While the movement of these cars is confined to the individual railroad and is not, therefore, as serious a burden on a terminal as interchange freight which must necessarily move over two or more railways, it nevertheless constitutes a tax on terminal capacity, a capacity which frequently cannot be increased except at very heavy expenditure. As in the handling of interchange, the motor truck has demonstrated its practicability for the movement of freight of this character at Cincinnati, where it has been given a thorough trial for more than three years. Here it has not only reduced the cost of transportation of this freight but has so greatly expedited its movement that a large part of the business received at outlying freight stations during the day is delivered at the point of concentration in time for forwarding the same day, a thing impossible with trap car service. That this method can be used elsewhere with equal advantage is self-evident. At the present time when the need for increased terminal capacity is so generally realized, taking terminal traffic off the rails offers a certain limited source of relief which warrants careful consideration.

Revenues and Expenses

The *Railway Age's* monthly tables of revenues and expenses appearing on another page of this issue are shown in a form differing considerably from that used in the past. The changes made are so great that a brief explanation is in order concerning what has been done and the reasons therefor. Under the new arrangement the figures for the month and the cumulative figures for the year including the month in question are now shown together instead of in a separate table. An effort has also been made to show the roads by systems rather than in merely alphabetical order. Some changes have also been made in the figures which will be shown in the table. There are 15 columns, as there were formerly. The first twelve of these 15 have not been changed. The last three, however, are different. They are now respectively the operating income (net after taxes), the net railway operating income (net after rentals) and the increase or decrease from last year of net railway operating income. The column of taxes has had to be omitted because typographical considerations do not permit of the inclusion of more than 15 columns. It is believed that the new arrangement whereby the monthly and cumulative figures are shown together and the carriers reporting are shown by systems will make the tables more convenient for the uses to which they are put by so many of our readers. The changes in the columns shown are, of course, explained by the fact that thereby the tables show in better form the information that is contained in the monthly reports to the Interstate Commerce Commission. More particularly, the change is advisable because the tables will henceforth show the net railway operating income which is given an entirely new importance by the terms of the Transportation Act.

Psychology of the Purchasing Agent

"Scarcely a railroad purchasing agent in the United States can see over the tops of the piles of requirements on his desk, which sooner or later must be turned into substantial orders for materials which are necessary for railroad operation. But little business is being handed out. Psychology among railroad buyers is the same as in any other field." The New York Times from which the above is quoted comments further as follows: "You probably refused to pay your tailor $125 for a suit of clothes six months ago and last week when he offered to make the same suit for $65 you refused to order it because you figured that he will eventually cut his price still lower. It's the same thing with railroads. Purchasing agents are not buying because they feel that lower prices will come." Psychology among railroad buyers may be the same but the situation with the railroads differs radically from any other industry. The railroads are the largest users of materials and a concerted buying movement on the part of the railroads is in itself a tremendous market factor that must

be reckoned with. There are certain physical improvements which must obviously be effected if the railroads are to deal effectively and efficiently with the traffic that will surely come with a revival in business activity. Purchases which are not made now must be made later and if the railroads act in unison it is not at all certain that in the long run this postponement will result in lower prices. The railroad purchasing agent knows when the railroad should buy and increase its stock of materials but his recommendations are not always followed and not unfrequently the credit situation of individual carriers has restrained purchases at the very time they should be made. Generally, however, the railroads have lacked a fixed policy with respect to expenditures designed toward achieving maximum efficiency and capacity. Failure or inability to make substantial purchases during periods of business depression and eagerness to accumulate large stocks of material when business was booming has proved an expensive practice. No result from the recent constructive legislation is more to be desired than a degree of financial stability that will enable the railroads to elect an even trend of expenditures for physical improvements. No single factor would have a more pronounced effect toward stabilizing the business of this country and nothing would reflect more credit upon the railroads or bring them greater prosperity.

Why the Railways Are Not Buying Now

IN AN EDITORIAL in its last issue the *Railway Age* presented some of the reasons why it is desirable that the railways should now be buying the normal amounts of equipment and supplies. The question of the future of prices is, however, one which is uppermost at the present time in the minds of buyers of all kinds of things, including railway purchasing agents and executive officers.

It is essential before one person can sell a thing and another can buy it that they shall agree upon the price to be offered and accepted. One of the principal reasons why the railways are not making their normal purchases now is that they believe the prices of most things they want to buy are too high, and that sooner or later they are bound to be reduced. Before extensive buying by the railways can be expected to be renewed the railway equipment and supply companies will have either to reduce present prices or convince railway officers that purchases ought to be made at present prices.

The attitude of many railway executives regarding this matter is indicated by letters which the *Railway Age* recently has received from several presidents and vice-presidents. The president of a western railway who was asked to give us his budget figures for the year 1920 sent them to us, but at the same time said in his letter:

"A thought has occurred to me in connection with your plan of publication and that is whether or not, if you are able to show that the railroads are going to purchase several hundred thousand freight cars and several thousand locomotives, it would be an inducement to the equipment companies to advance their prices before orders are placed. If this should occur, of course, we would possibly reduce very largely our equipment purchases, or defer them altogether."

The president of an eastern railroad said recently in a letter to this paper:

"Who has the nerve to buy a thousand freight cars at $3,200 to $3,500 a car, or locomotives at $55,000 to $70,000, or undertake large construction jobs with an eight-hour day program and existing rates of wages for artisans, mechanics and laborers? Who will build extensions to railroads with steel at $55.00 to $57.00 a ton? Frankly, I shall hesitate and consider most carefully before plunging ahead, when I feel morally certain that within sight ahead of us there will be prices and conditions more attractive."

The president from whom the foregoing is quoted had said in an earlier part of his letter: "It is an absolutely 100 per cent statement when I say that all railroads are not only willing, but anxious, to go ahead with construction and purchase of additional equipment, and the extension of terminals and the erection of adequate facilities."

The executive head of a large railway in the south has written us as follows:

"The present prices for equipment of all classes are, in my opinion, quite excessive and unless material reductions are brought about we may not be able to increase our ownership on the scale now in contemplation. Moreover, I am somewhat fearful that any public announcement of our plans with respect to the purchase or construction of additional locomotives and cars in advance of the negotiation of necessary contracts would tend to unduly inflate the equipment market. We have some very pretentious ideas as to additional equipment, but I am afraid that we shall be obliged to go rather slowly."

The letters from which the above extracts are quoted were all written by officers of railway companies which solely from a financial standpoint would be able in the immediate future to make purchases in normal amounts, and which, if they refrain from doing so, will be influenced chiefly by the consideration of prices. The letters were not written for publication or to influence the market. They unquestionably express the actual views of other writers.

We have recently heard the question frequently asked by men in the railway equipment and supply business as to why the railways are not now buying at the normal rate. The letters from which we have quoted doubtless give the principal answer.

It is for the railway equipment and supply manufacturers to determine the prices at which they can afford to sell. It is for the railway companies to determine the prices at which they can afford to buy. It would promote the welfare of both of them, and of the country as a whole, if they would soon get together on a basis which would be satisfactory and reasonable for both. It is hardly exaggerating to say that in the railway field, as in many other fields of business, the sellers and buyers of many commodities are practically deadlocked. It is hardly probable that in this or any other field the deadlock will be broken as long as either side waits for the other to make all the concessions.

Where the Money Is Going

THE RAILWAYS HANDLED more freight in October than in any previous month in their history. They should have had in that month a net operating income of $113,000,000 for that month to have contributed its share toward an annual return of 6 per cent. The statistics thus far compiled indicate that the Class I railways earned only about $83,000,000 net return. This was 25 to 30 per cent less than the amount expected.

The reason why the net return expected was not earned is apparent upon the face of the figures. It was not because the total earnings were less than was anticipated, but because the operating expenses were greater than was anticipated. The operating efficiency of the roads has been in many respects greatly increased within recent months, and was at its height in September and October. The average miles traveled by each freight car, the average load per freight car and the average tons per train in those months broke all records. Why, in spite of these facts, were the operating expenses so high?

No detailed statistics of operating expenses in October are available, but some detailed statistics of expenses in September are available, and they throw much light on the situation. The three large classes of operating expenses are those for maintenance of way and structures, maintenance of equipment and transportation. The expenses for maintenance of way in September were 38 per cent greater than in the same month of last year; the expenses for maintenance of equipment 7 per cent greater, and the expenses for transportation 37 per cent greater. These figures show that large increases in expenses have occurred in every department. The expenditures for maintenance of equipment were sharply reduced in September by an actual reduction of work. If this had not been done they would have shown a much larger increase. In the first nine months of the current year they were 30 per cent greater than in the first nine months of last year.

It is impossible with the data available to analyze any of the increases in expenses except those for transportation. The Interstate Commerce Commission has compiled data regarding the increases in most of the important costs that enter into transportation expenses. Since transportation expenses constituted in September almost exactly one-half of the total operating expenses, the commission's statistics regarding the various items of transportation expenses merit careful study. This is especially true of those regarding the cost of transporting freight. The unit costs given by the commission are those for locomotive repairs, wages of enginemen, fuel, other locomotive and train supplies, engine house expenses, and wages of trainmen. These items for each freight train mile totaled in September, 1919, $1.60, while in September, 1920, they totaled $2.10, an increase of over 31 per cent. For each freight train that was moved one mile in September, 1919, the cost of locomotive repairs was 43.6 cents, while in 1920 it was 50.8 cents, an increase of 14 per cent. This accounted for approximately $6,300,000 of the increase in transportation expenses.

The increase in the wages of enginemen per freight train mile was from 23.3 cents to 31.5 cents, or 35 per cent. This accounted for over $5,000,000 of the increase in transportation expenses. The increase in the cost of fuel per freight train mile was from 45 cents to 65 cents, or 45 per cent, and accounted for over $12,150,000 of the increase in transportation expenses. This advance in the cost of fuel per train mile was entirely due to an advance in the average price of coal. The average price per net ton paid in September, 1919, was $3.10, while in 1920 it was $4.54, an advance of 46 per cent. Trainmen's wages per freight train mile in September, 1919, were 26.6 cents, and in September, 1920, 37.6 cents, an increase of 41 per cent. This accounts for more than $6,700,000 of the increase in transportation expenses.

The foregoing figures do not include all the items that enter into the cost of moving freight trains and do not include any of the costs of moving passenger trains. The items mentioned do, however, account for over $30,000,000 of the $69,000,000 increase in total transportation expenses which occurred in September. They will indicate to anybody who is used to studying statistics regarding railway expenses the difficulty of the problem with which railway officers are confronted. Very much the largest item of increased transportation expenses is that for fuel. It seems fair to assume that the average cost of coal per ton will in future months decline substantially, but railway officers cannot control coal prices. The increases of 35 per cent per freight train mile in the wages of enginemen and of 41 per cent in the wages of train men are due not merely to the large advance in wages granted to these and other employees by the Railroad Labor Board last July, but also to the "punitive overtime" granted by the Railroad Administration to employees in freight train service. The labor cost of moving a freight train one mile cannot be materially reduced without either reducing the wages of the train service employees or increasing the average speed the trains are moved, and while punitive overtime gives the management an incentive to get trains over the road in a shorter time, it affords to employees an incentive to get them over the road in a longer time.

In spite of the obstacles in the way, it is evident that railway expenses must be reduced and reduced greatly. One of the largest items of expense which must be reduced is the cost of fuel. The roads are failing at the rate of $25,000,000 to $30,000,000 a month to earn their estimated net return. A very large part if not most of this failure is due to the fact that fuel is costing them much more than was estimated at the time the statistics on which they based their application for advances in rates were made up. Fuel prices already are declining, but there is need for much greater efforts to economize in the use of fuel by better supervision and by the more extensive use of fuel-saving devices. There must be secured a greater increase in the efficiency of labor. This also must be obtained by better supervision and by the more extensive use of labor saving devices and machinery in all departments.

One of the most important things that should be done is to keep up the heavy loading of cars. This can be done only if the co-operation of shippers can be secured. It can be secured if shippers can be made to understand what heavy loading means to them in the cost of transportation. The progress which has been made and the results which have been obtained in increasing the average loading of cars within recent years are remarkable. In the year 1915 the average number of tons hauled per train was 474½ tons, while in September, 1920, it was 767 tons, an increase of 61 per cent. This increase in tons per train was mainly due to the increase in the number of tons per car. The average number of cars per freight train in 1915 was 34, while in September, 1920, it was 39, an increase of 15 per cent. The average number of tons per loaded car in 1915 was 21.2, while in September, 1920, it was 30.1, an increase of 40 per cent. What did it mean to the railways, and through them to the shippers, to secure these increases in the average load per car and per train? With an average train load of 767 tons, the railways ran 53,017,000 freight trains one mile in September to handle the business of that month. If they had had only the average carload and train load of 1915 they would have had to have run in order to have handled the freight business of that month an additional 32,654,233 freight trains one mile.

As we have shown, the cost of locomotive repairs, wages of enginemen, fuel and wages of train men amounted in September to $2.10 for each freight train run one mile. Therefore, if the railways in September had run 32,654,333 more freight trains one mile, as they would have had to do if they had had only the average carload and train load of 1915, locomotive repairs, wages of enginemen, fuel, and trainmen's wages in freight service alone would have cost $68,639,200, more than they actually did. Furthermore, the running of 33,000,000 additional trains one mile would have caused enormously greater costs for maintenance of way and structures, maintenance of equipment and return upon investment in the additional facilities that would have been required.

The unprecedentedly large car loads and train loads in which the railways recently have been handling freight have been saving them, and through them the shippers and the public, literally hundreds of millions of dollars a month, and there ought to be exerted the utmost effort and co-operation by the railways and shippers to maintain and increase them.

Letters to the Editor

Increasing Car Loading of Mutual Interest to Shipper and Railway

CHICAGO.

TO THE EDITOR:

Maximum loading of freight cars is so desirable a factor in increasing transportation facilities that shippers should be only too glad to co-operate with the railroads. They are doing it now. From February to August of this year, the average loading of freight cars increased from 28.3 tons to 29.8 tons or 1½ tons a car. As a result of this co-operation on the part of shippers, there was a gain of carrying capacity equal to 112,500 cars— a necessary achievement in view of the fact that last year developed an increased shortage of 100,000 freight cars due to the fact that something like 135,000 old cars were scrapped and approximately only 35,000 new cars were constructed.

The return of the railroads to the management of the capable railroad men who made such a success of their operation before the war, has been marked by a gratifying measure of efficiency. Shippers and railroad executives have pulled together. They will continue to work in harmony just as long as each side thinks it is being treated fairly. The railroads want adequate compensation for carrying freight; the shippers feel that in return for the increased compensation the railroads have been accorded, they are entitled to cheerful, expeditious service.

In theory, cars should be loaded to their maximum capacity, and, as has been stated, there has been an increase of 1½ tons per car. There is a point in loading capacity, however, beyond which shippers should not be asked to go unless the railroads keep step with them.

The additional tonnage carried by the freight cars of this country this year has been largely at the expense of the shippers, who, in order to load their cars heavier, have been obliged to supply a greater amount of dunnage. This dunnage consists of timbers erected in cars to prevent loads from shifting. Sometimes it weighs from 3,000 to 4,000 lb. Shippers are not only put to the expense of erecting this dunnage including the cost of the material which they never recover, but they are actually obliged to pay for its transport. Suppose the dunnage should be erected in a car transporting steel products from Chicago to the Pacific Coast; the rate on this class of freight is something like $1.50 per 100 lb. so you can see that the shipper, in such an event, would be charged $60 freight for the transportation of dunnage erected to prevent the load from shifting and in order that the car might be loaded heavily to meet the wishes of the railroad and to prevent damage to the shipment.

It seems to me that if the carriers wish to co-operate fully with the shippers, they will, of their own volition, put into effect a rule allowing shippers at least the free transport of this dunnage. Heavy loading of cars unquestionably results in damaged shipments due to shifting loads, in consequence of rough handling of the cars; this is indicated by the fact that the railroads in the last year had something like $106,000,000 loss, damage and theft claims growing out of freight transport.

A rule allowing shippers free transport of this dunnage would encourage heavier loading, especially at the present time when there is a tendency on the part of consumers to curtail their buying or at least to keep it within their actual and immediate needs on a declining market. The consignee does not want a heavily loaded car unless he has a ready market for the commodities, and he does not want to pay freight charges on a shipment that may exceed his immediate needs unless there is some inducement.

Shippers can co-operate effectually with the railroads in the matter of heavier car loading by making their trade units correspond to the capacity of the cars. I understand that this has been done with cement and a number of other commodities. The trade unit in cement shipments has been made 144 bbl. for a 50,000 lb. capacity car; 173 bbl. for a 60,000 lb. capacity car; 231 bbl. for an 80,000 lb. capacity car, and 289 bbl. for a 100,000 lb. capacity car. The establishment of this standard encourages loading cars to capacity. If this could be done with other commodities, it would be a great help to the railroads. It happens, however, that the railroad companies themselves are the heaviest offenders in their own purchases for they buy in trade units rather than in car units.

The *Railway Age* is doing an important work in presenting this subject so that the railroad managers can obtain the viewpoint of shippers and if it can bring about the two reforms mentioned, there will be increased loading of freight cars. It is all a matter of education and co-operation.

JOHN M. GLENN,
Secretary, Illinois Manufacturers Association.

Economies at Small Expenditures

EL RENO, OKLA.

TO THE EDITOR:

Because of the present money stringency and rather doubtful outlook for an improvement in the near future, the railroad managing officer is seeking the man with a new and successful method of handling railroad work that can be put into effect without the expenditure of a great deal of money. It does not take much thought on the part of any practical railroad employee to suggest an improved way of handling that branch of the railroad work in which he is experienced, by the expenditure of a large amount of money, but to work out and put into effect a method of handling the work which will give the same or better results and requires little or no expenditure of money, is something that requires study, serious thought and practical experience in the work.

Employees at staff meetings should be encouraged to make suggestions as to improved methods of handling their work. There are today a great many employees in train, engine and yard service and in clerical positions who have a college education and, consequently, have trained minds, and they should be encouraged to use their training to advantage to themselves and to the benefit of the company they serve. Officers should be careful to analyze every suggestion made and not treat it lightly. Frequently the first thoughts of an employee are followed by other thoughts more valuable. Every improved method of handling railroad work was suggested by some one, and there are many more suggestions in the minds of the employees just as valuable, if they are encouraged to work them out.

Every railroad officer can recall to mind specific instances where a yardmaster, agent, warehouse foreman, roundhouse foreman, in fact in almost every railroad position, a new man was installed and by improved methods the work was handled by the new man just as well and more economically with only a slight change in methods and no expenditure of money. The railroad employees in the ranks today are the railroad officers of tomorrow. Endeavor to inspire them with a spirit of honor, confidence and loyalty to their officers, fellow employees and the company they serve, and the economic methods will come through the feeling that they are employees of the best railroad in the land and that the company's interest is their interest.

H. L. REED,
General Superintendent, Rock Island Lines.

After the Flow Stopped. The Shovel at the Right Is Casting to the One in the Center

How Railroad Forces Met a Serious Emergency

Well Organized Plan of Attack Enables Pennsylvania to Use Large Plant to Overcome Slide

AFTER SPENDING the entire month of November in fighting a most remarkable landslide that threatened to cut its Pittsburgh-New York line in two, the Pennsylvania has restored to operation all of the eight tracks which had been buried under a great mass of earth. A study of the situation indicates the possibility of a recurrence of trouble at the same site at any time, but under conditions so modified that the same spectacular results or serious consequences are essentially precluded. This noteworthy slide, which occurred on terminal tracks about one mile east of the Union Station at Pittsburgh, was described in the *Railway Age* of December 10, page 1029, where the primary causes of the difficulty and the manner of overcoming them were discussed. Information subsequently available throws more light on the conditions responsible for this accident and also permits of a more detailed account of the organization and methods instituted in marshalling a most extraordinary force of earth moving equipment in a small operating area. Not the least among the problems involved was that of the disposal of the spoil, which was a soft clay high in water content, foul with foreign matter and difficult to unload.

Virtually the Failure of a Dam

This costly accident can be compared most favorably with a failure of a dam, for it was the destruction of a high retaining wall which allowed the impounded fillings and dumpings behind it to debouch onto the property of the railway below. This operation was not completed for several days because the material was earth instead of water. The principles involved, nevertheless, are essentially the same. Therefore, to study the causes of this landslide it is necessary to go back 22 years to the time when this retaining wall was built.

The tracks of the Pennsylvania for some distance east of the station at Pittsburgh lie at the base of a high bluff of rock, shale and clay and at the point where the slide occurred the cliff was scored by a gulley of somewhat flatter slope than the face of bluff. When, in 1898, the city undertook to build a public highway on a shelf in the bluff, some 200 ft. above the tracks, this hollow introduced a serious obstacle. Although the roadway was placed as near the natural contours at the head of the ravine as possible, it was found that a 60-ft. embankment was necessary. At first, it was decided to build a retaining wall along the edge of the highway for the support of this fill; in fact, a portion of such a wall was built and the rock surface was cleaned off, preparatory to the construction of the remaining portions. However, this plan was abandoned and instead the embankment was allowed to take its natural slope with the consequence that considerable of this material spilled out onto the railway tracks. This led the railroad to secure a restraining order, preventing any further work until proper measures were taken to hold the embankment.

Following this, it was found that, by building a retaining wall about 200 ft. long at a narrow part of the gulley about 125 ft. back from the nearest railway track and with its top about 90 ft. above rail level, support could be had for a fill sloping upward and back some 400 ft. to the roadway. This wall was of ashlar masonry of a maximum height of 55 ft. above its footing and was built in three different sections, giving it a peculiar shape. The wall developed difficulties very shortly after the back filling was applied, cracks appearing in the two wings. So the work was stopped and weep holes drilled through the bottom and a French drain placed at the back, after which the filling was again continued. As an additional precaution, a heavy timber crib was built some distance up the slope. After the work had been carried out in this manner engineers of the railroad made observations on the wall for a year subsequent to its construction, but no additional movement was noticed.

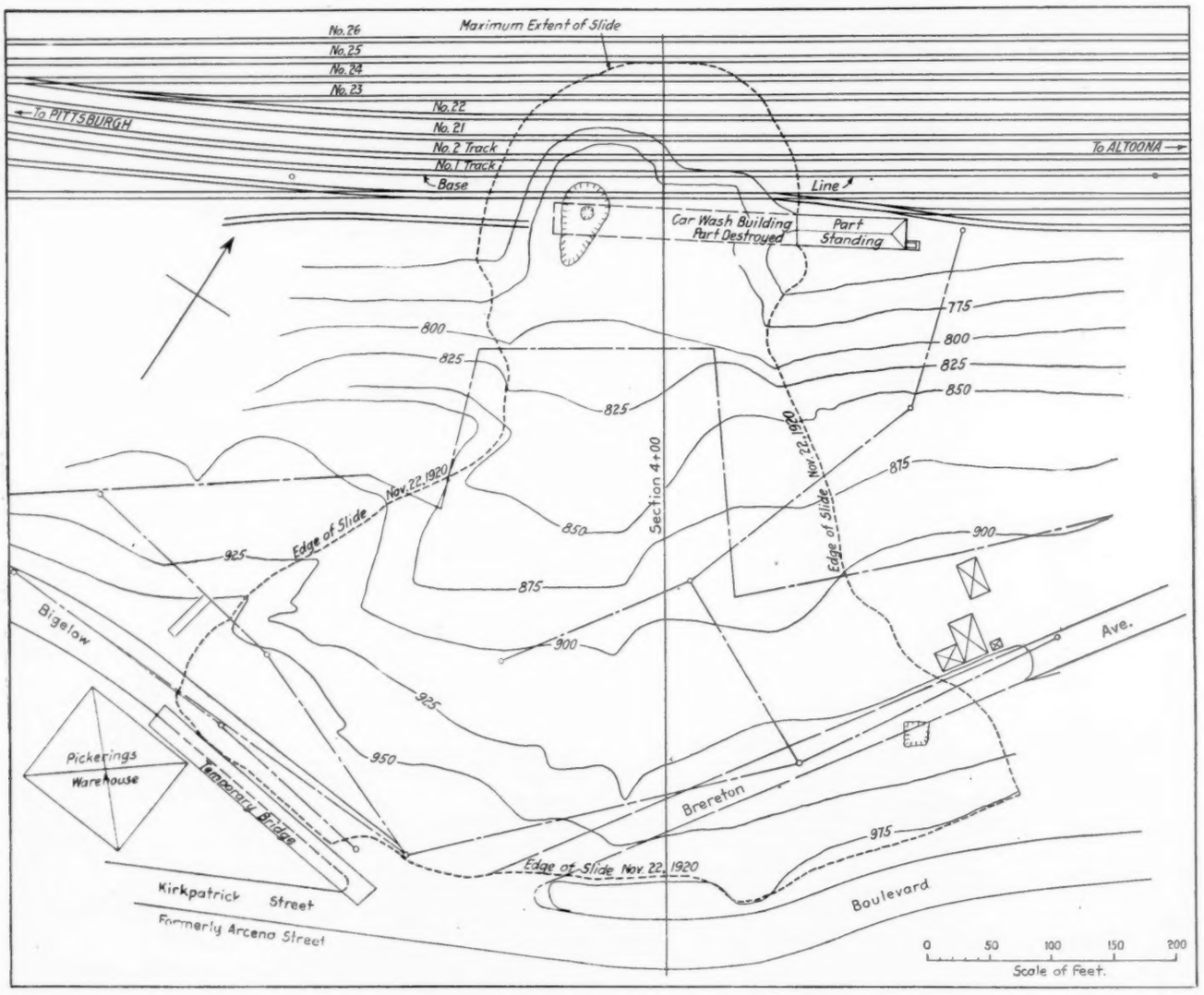
There are a number of springs in this ravine and, at the

time that the highway was built, provision was made for them by the construction of several drains. The presence of these springs was again noted recently when test holes were drilled on the site of the boulevard and indicates one reason for the large amount of water in the earth fill.

From the time that this wall and highway were constructed until the present, filling operations were continued almost incessantly. The inhabitants of the neighborhood used this hollow as a dumping ground, while various contractors used it as a spoil bank for excavations. During the present year this filling was prosecuted with increased vigor, for the purpose of widening the highway embankment to improve the alignment. This work and improvements carried on elsewhere resulted in the deposit of about 30,000 cu. yd. of additional surcharge on the old retaining wall. About October 8, 1920, information was received by the railroad officers to the effect that cracks were developing in the fill alongside the boulevard, indicating a possible slip of the entire mass. Efforts were made to get in touch with the city authorities at once, but because of unavoidable circumstances a conference between the railroad and city officers was not held until October 18. In the meantime, the mass of filling had started to slide and considerable quantities of earth slipped down to the retaining wall and flowed over the top of it. About the same time, the cracks, which had originally developed in this wall, showed indications of opening up again and in a short time they evidenced a movement of one inch per day.

Efforts were made at once to relieve the situation by placing a force of men on top of the wall in an effort to remove as much of the load behind it by throwing the earth in front of the wall and thus adding weight at that point for additional support. Notwithstanding this, the wall kept moving forward with a corresponding settlement of the ground behind it. This movement of the wall was directly forward, without any tendency toward tipping until the entire wall was carried far enough to move it entirely off its original foundation. Overturning then followed.

These conditions had not progressed very far before it became apparent to the railway officers that serious consequences were to follow. Unfortunately, a two-story brick building, 60 ft. wide and 290 ft. long, used for the service and stores of the coach cleaning and repair forces, stood directly in the path of the moving retaining wall, while the two main passenger tracks were located just beyond this building. When it became apparent that the wall would fail, arrangements were made for detour of passenger trains as soon as this should become necessary. The railroad also placed 150 men in the storage building to remove some $150,000 worth of materials stored therein, and on the morn-



General Plan With Contours of the Location of the Pittsburgh Slide

ing of October 29 this force had cleaned out the contents of the building with the exception of a small amount of stores in the basement.

An inspection of the conditions at 9 a. m. on that day indicated an early failure of the retaining wall. These conditions became so alarming by 10:30 a. m. that the men

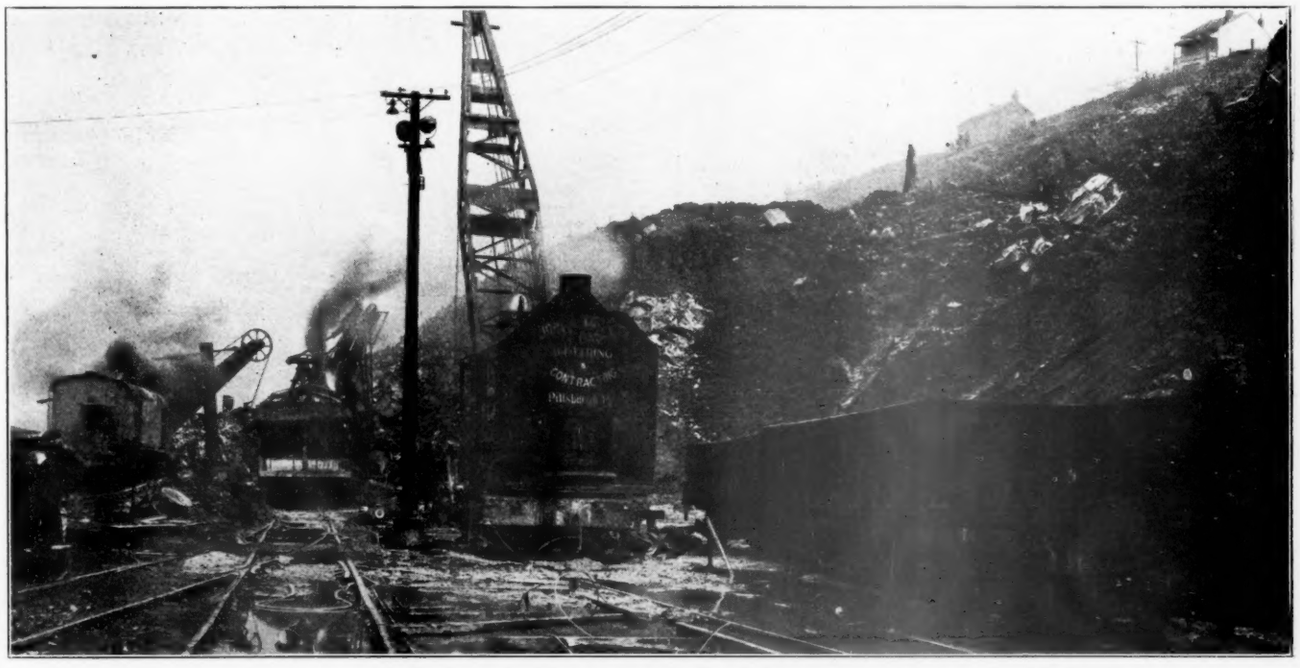
The Wall With Wings Gone and a Large Central Section About to Fall

engaged in removing the slide from the retaining wall were ordered to abandon the work. This precaution proved well founded for about 11:15 a. m. the wall began to disintegrate. All employees were warned out of the building and reached the point of safety before the wall finally failed at 11:45. It fell over in sections, the first part dropping out of the east end, the west end falling next, and the center portion going last. The falling masonry caused serious damage to the west end of the stores building, knocking in about 30 ft. of the rear wall and pushing out about 20 ft. of the front wall. About 80 ft. of the building was pushed 6 in. off the foundation and seriously racked. The fall of the upper portion of the wall and the wrecking of the west portion of the storage building resulted in fouling the No. 1 passenger track but service was resumed as soon as debris was cleaned away. However, because of danger that further disturbances would result in the wrecking of other portions of the stores building and cause it to fall on the track, a section 80 ft. in length was pulled down with the aid of a bridge derrick.

The portions of the wall to fall comprised essentially the top 30 ft., leaving a lower portion 25 to 30 ft. in height still in place but this portion gradually tipped over until it reached an angle of about 45 deg. and was pushed forward by the great mass of earth behind it in approximately this position. Anticipating that a large mass of earth would soon flow out over the tracks and require extensive excavation operations, it was seen that the presence of the large masses of stone masonry of the retaining wall would introduce a serious obstacle. Consequently steps were taken as quickly as possible to dynamite this masonry and efforts in this direction were well along before the flow of earth made it necessary to discontinue them. Following the fall of the retaining wall, the movement of the earth became rapid and averaged about one inch per hour.

An Intensive Excavation Project

When it became apparent that a slide would take place, arrangements were made to muster a force of excavating equipment and two steam shovels were on the ground before the retaining wall failed and commenced work at once. As the situation developed, further calls for equipment were made and eventually the complement consisted of 9 large steam shovels, 2 small ditching machines, 14 locomotives, 120 40-yd. steel dump cars, 300 12- and 16-yd. wooden dump



Steam Shovels and Ditchers Fighting the Slide

cars and about 500 gondola cars. At first, an attempt was made to operate two steam shovels on opposite sides of the slide, loading cars in a train on a through track immediately adjacent and directly in front of the slide but it became apparent very soon that this method of operation could not be carried out successfully. The difficulty in the way of this was a characteristic heaving of the ground immediately in front of the slide, making it impossible to maintain a track

in that position. Moreover, the movement of the slide was so rapid that it would envelop the tracks in front of it before anything could be done to prevent. As a consequence, a different method of attack was undertaken. This consisted in placing as many steam shovels on each side of the slide as possible, occupying alternate tracks and using the tracks between for loading. This entailed the use of a rather cumbersome stub-end method of loading but proved to be the only practical method as long as the slide was actually moving forward. In fact, it was necessary to withdraw the shovels several times a day to prevent them from becoming enveloped by the slide. This mode of attack was continued until the slide reached the limit of its movement, when it covered the eighth track, and the ninth shovel was placed in use directly in front of the moving earth. This was the status of the operations when, on November 18, evidences pointed to a slackening of the movement to an extent which indicated that some progress was being made in clearing the tracks.

Following this, it became possible to institute a more progressive method of handling the shovels. Under this arrangement, two shovels were placed on adjacent tracks on

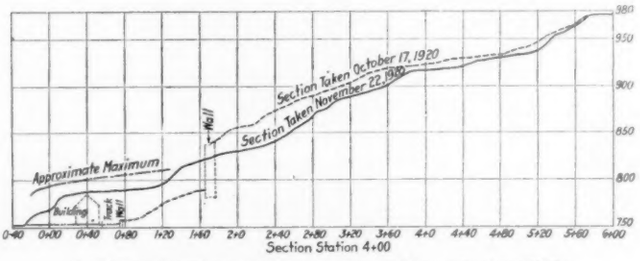
After the Wall Fell and Before the Earth Followed It

each side of the slide with the two inner shovels slightly in advance. These inner shovels then cast the material where it could be picked up again by the outer shovels, which in turn deposited it in cars on a through track. This method was obviously not the most economical but it made for the greatest possible speed in clearing up the debris. The tracks were finally cleared of the earth on November 26.

Throughout the entire operation, the work was constantly being hampered by the soft, mushy character of the material, the shifting and heaving of the tracks and the presence of a large amount of water that could not be readily drained away and, therefore, resulted in very soft tracks. One of the steam shovels was caught in the slide and it required two days' work with the aid of a large McMyler locomotive crane, equipped with a clam shell bucket to dig it out. The operations were also hampered by the lack of sufficient space for switching the material cars, since adequate provision had to be made at all times for the operation of passenger trains.

One of the most important features of the excavating work concerned the dumping of the loaded cars. Arrangements had to be made for spoil banks at various places on the line and a complete transportation organization built up for despatching the dirt trains. It was also necessary to make a number of changes in the track layout to facilitate the movement of cars to and from the shovels and for making up trains destined for the various dumps. These had to be classified as between bottom dump and gondola cars to suit the facilities for unloading. The work of handling trains was in charge of a yard master, assisted by two assistant yard masters. Close communication was maintained with each of the dumping locations, so that the cars would be despatched in a manner to avoid congestion.

The work progressed continuously from the time that the slide cut the main tracks until they were again placed in service at 7 a. m. on December 6. During this time, approximately 1,400 gondola cars, 500 steel dump cars, and 1,600 wooden dump cars were loaded and despatched, removing

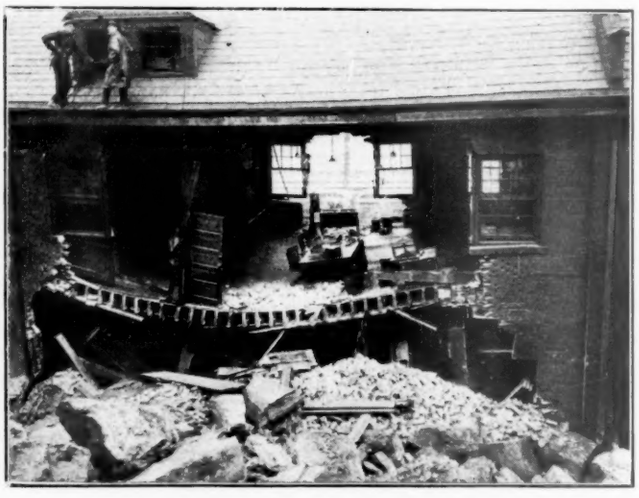


A Cross-Section Taken at the Point of the Slide

about 130,000 cu. yd. of earth. Every precaution was taken for the quick despatch and unloading of the cars to prevent the lading from freezing but favorable weather obviated this difficulty and it was also found possible to have no car under load over 24 hours.

The maximum width of the slide measured along the main tracks which it covered was 310 ft. The maximum height attained by the mass of earth was 55 ft., or some 15 ft. higher than was the case at the time that the levels shown on the profile were taken.

The maximum encroachment of the slide on to the railroad property was 200 ft. from the mouth of the ravine



What the Falling Wall Did to the Storage House

but measurements taken during the progress of the slide showed that this movement amounted actually to 305 ft. The difference in the above figures represents the extent to which the large force of steam shovels was able to beat the slide back while it was in motion.

The entire attack on the slide was under the direction of C. W. Richey, division engineer, Pittsburgh terminal division, under the general supervision of W. D. Wiggins, chief engineer maintenance of way, Central region.

The Co-ordination of Rail and Water Transport*

Railways and Waterways Not Naturally Competitors and Should Work Together—Railway Ownership of Boat Lines

By Charles H. Markham
President of the Illinois Central Railroad

I THINK IT WILL be agreed that the question of the development of inland waterways should be considered as a part of the entire transportation problem of the United States. We need better and more adequate transportation to carry the products of our farms, forests and mines to the places in our own country where they are to be consumed or to be used as the fuel and raw materials of manufacture. We need better and more adequate transportation for distributing the products of our manufacturing industries from the great centers of population and industry to all parts of the country. Our people within recent years have enjoyed a great export trade. Their prosperity requires that a large part of all of this be retained; and the efficiency and adequacy of our inland transportation and our merchant marine will largely determine the amount of export business we shall do.

It is important not only that our means of transportation, inland and overseas, shall be adequate and efficient, but that all our transportation service shall be rendered as cheaply as possible.

If our industries are to grow, and to compete successfully with those of other nations, we must get our raw materials and manufactured products to tidewater for delivery to an American merchant marine at a cost which will enable prices to be made for our commodities which will compare favorably with the prices charged by other nations. To do this we must make use of those instrumentalities of transportation which are in fact the most efficient and economical.

We have available three means of inland transportation—highway, railroad and waterway. Good roads and the motor truck have begun to play an important part in transportation. For some years the railways have found it difficult, and at times impossible, to handle all the freight offered. Trucks have helped to relieve the situation by handling substantial amounts of freight in congested areas. In many cases they have hauled freight, and especially high grade freight, considerable distances. Probably, however, the future of the motor truck as a carrier of freight will be found in handling it short distances in congested areas, and in bringing it to railways or waterways from points not reached by them. Practically all the freight moving long distances will go by rail and water.

Best Kind of Transportation Depends on Conditions

The public's welfare demands that transportation shall be rendered in any particular territory, or between any particular points, by that means which can render it most economically, due allowance being made for differences in the speed, regularity and other features of the service. There are many parts of the country in which water transportation cannot be provided. There are others in which it can be provided, but not under conditions that would render it desirable or even feasible to have the freight business transferred from the railways to the waterways.

There are still other parts where transportation by water has such great advantages over transportation by rail that the railways stand no chance of getting any considerable part of the business. Take, for example, the supplying of coal to the Northwest. The advantages of water transportation on the Great Lakes for bulky commodities moving in large volume are so great that the natural source of the Northwest's coal supply is the mines in the Pittsburgh district, in Ohio and in West Virginia, and the natural route for it is by rail from the mines to Lake Erie ports, and by boat to the head of the lakes. Only a small part of the coal going to the Northwest moves entirely by rail.

There are, however, many parts of the country in which it is still debatable whether, if the waterways were developed, transportation by rail or by water would have the advantage in cheapness and efficiency. I do not wish to say anything against the governmental waterway policy which has been followed in the past. There is, however, one point regarding it on which I think all will agree. This is that it has not been carried out in such a way as definitely to determine where transportation by water, and where transportation by rail, are preferable. If the nation is to continue to spend many millions of dollars upon waterway development, the greatest immediate need seems to be the formulation of a definite and constructive policy under which waterway expenditures will be concentrated where physical and commercial conditions are favorable to the development of a large water borne traffic.

The development of waterways often has been advocated to regulate railway rates. Doubtless in many cases railway officers have assumed an attitude of antagonism to it because they feared the effects it would have on their earnings. Railway officers are able now to take a more detached view of this subject than in the past. One of the products of the war is a new point of view toward the railroad problem as expressed in the Transportation Act under which the roads were returned to private operation. For the first time in the history of the country there is recognition of the fact, not only by the general public but by the law regulating railways, that to take care of the country's business the railroads must be enabled to provide adequate facilities, and that to provide adequate facilities they must be enabled to earn adequate returns.

The Transportation Act directs the Interstate Commerce Commission to so fix the rates as to enable the railroads of each group, if efficiently and economically managed, to earn a return of 5½ to 6 per cent on their aggregate valuation. It follows that if waterways should be so developed in some parts of the country as to take freight business from certain lines of the railways, the Interstate Commerce Commission would have to make the rates high enough on the business left to yield the returns specified in the law. While, therefore, the development of waterways in certain parts of the country might make the cost of transportation lower to shippers located on the waterways, it might, because of the diversion of business from the railroads, actually make the rates of shippers located exclusively on the railways higher than they otherwise would be. However, as I have said, the government should consider the policy adopted in relation to its effects on the public as a whole, and not in relation to its effects on only part of the public.

You may say that water competition would force the rail-

*An address delivered before the River and Harbor Congress at Washington, D. C., on December 8, 1920.

ways to reduce their rates, at least between points where the competition existed. I think there is a good deal of misunderstanding regarding competition between railways and waterways. My observation is that there never has been for any considerable time actual competition between them. When freight may move between certain points by either rail or water it always is but a short time until either the rail route gets it all or the water route gets it all.

Waterways and Railways Not Naturally Competitors

Take, for example, the case I have cited of coal moving to the Northwest. The water route via the Great Lakes is better and more economical than the all-rail route. In consequence, practically all the coal is moved by water. Because of the fact that the water route is better and more economical, the railways not only do not compete, but do not provide facilities for competing. In consequence, if conditions arise which interfere with the movement of sufficient coal by water, it is practically impossible to get the coal to the Northwest. Somewhat the same situation existed before the war with respect to the movement of coal from the West Virginia mines to New England. The coastwise route from Norfolk and Newport News always had been better and cheaper than the rail route, and practically all the coal moved by rail to tidewater, and thence by water to New England. In the midst of the war many of the coastwise steamships were transferred to transoceanic service, and it was found almost impossible to get enough coal to New England by rail.

Take, again, the conditions that have existed between Savannah, Ga., and New York and Boston. Until the carriers by water were commandeered for war purposes the people of Savannah knew nothing about shipping by rail, either from New York and Boston to Savannah, or vice versa, any commodity that could be handled by water. You might occasionally find a large piece of machinery that could not be gotten into the hold of a vessel and that had to be handled by rail on two freight cars. I do not know of any cases of the kind, but there doubtless were some. The same general conditions exist between New York and all the South Atlantic and Gulf ports. The railroads are there and yet all the traffic moves by water. There is no real water and rail competition.

On the other hand, when the railroads have been able to provide better and cheaper service than parallel waterways there has been an irresistible tendency for the business to leave the water routes and go to the railways. It may be well, in this connection, to refer briefly to the early history of the development of some railroads, and the consequent destruction of traffic on parallel water routes. Almost all the railways built in the early history of this country were constructed to serve communities already served by water. They were built to serve these places, first, because these places had become the principal centers of population and industry, and, secondly, because transportation by rail was regarded as more speedy and efficient than by water. The railroads having been constructed, and having almost no source except places located on the waterways from which to draw business, and the total business available being insufficient for both the railways and the waterways, it was inevitable that either the railway or the waterway would survive at the expense of the other.

In our early history the Erie Canal was a very large carrier of freight. When railways were built paralleling it they had to get all the business they could to live. They therefore rendered service and made rates which speedily took practically all the traffic from the Canal.

Effect of Climatic Conditions

Climatic conditions have been among the chief reasons why the railways have taken from many waterways practically all their business. A railway can operate throughout the winter in our northern states, while the waterways are closed to navigation. The Mississippi river north of Cairo, and for some distance south, often freezes over and becomes unnavigable for two months or more. The season when navigation is closed on many other inland waterways is longer. In order that a railroad may be in a position to give the public at all times the service it needs, the railroad ought to be equipped to permit it to take care of the peak load of its traffic just as should any other public utility such as an electric light or a water plant.

It is, however, a question of public policy as to the extent to which railways should be expected to provide surplus capacity to handle traffic thrown upon them by waterways becoming temporarily unnavigable. The condition mentioned is certainly one of those influences which have been potent in enabling the railways to take the business from certain waterways. When these waterways are closed the shippers make arrangements for having their traffic handled by rail, and usually find it inexpedient to divert their business from the railways to the waterways when navigation is closed, and then divert it back again when the waterways are open.

As I have said, the transportation problem should be approached from the standpoint of the welfare of the entire public. All the people must bear in the first instance the cost of waterway development carried on by the national government. The total cost of handling traffic on canals and canalized rivers includes interest on the money invested in constructing them and the cost of maintaining them, as well as the cost of providing the boat service. Should not the users of water service be required to contribute in the form of tolls toward a return on the investment and toward the maintenance of the facilities? It seems only fair to all of the people of the country that if government money is to be used to provide facilities for the movement of traffic by water, the users of the water service should contribute toward the cost of constructing and maintaining the waterways, just as those who use transportation by rail are required to contribute toward the cost of the construction and maintenance of the railways.

Since there never is for any considerable time actual competition between water and rail carriers—as one or the other, when they are pitted against each other, always will take practically all of the business—there is evident need for comprehensive study to determine where transportation by water and where transportation by rail will be preferable. It is as questionable a policy to make expenditures on waterways where the conditions are such that they probably will never be able to take the business from the railways, as to provide a large surplus capacity on the railroads to be used only in emergencies when the waterways are closed. The object of a national policy should be not to foster competition between railways and waterways, but such development of both as will enable them to co-ordinate their facilities and work together to give every section of the country the best, most adequate and cheapest transportation service practicable.

Railway Ownership of Boat Lines

When we find, after proper experiments have been made, that transportation by water in any part of the country is in fact more efficient and economical than by rail, the railways should not be forbidden, but encouraged, to use the waterways as auxiliaries. The railroads are already organized and engaged in the business of transportation. They have agencies and connections with other railroads throughout the country, as well as connections with steamship lines throughout the world. They therefore have facilities for gathering traffic from every direction to turn over to water carriers. It may be said that if the railways are allowed

to operate boats they will drive off boat lines owned by independent companies, but the Interstate Commerce Commission has power to prevent this. It has the same authority to regulate rates applying partly by rail and partly by water as to regulate rates applying entirely by rail. It has authority to require the railways to establish reasonable through rates and to make reasonable division of rates with water lines. In addition, the Interstate Commerce Act provides that if a railway reduces a rate to meet water competition, it shall not be allowed later to advance it merely because the water competition has been destroyed. With all these safeguards there does not seem any good reason to fear that if the railways were allowed to own and operate boat lines there would be any serious danger that they would drive out independent lines. In fact, boat lines owned by railways did, for years, operate side by side with boat lines owned by independent companies on the Great Lakes. When legislation forced the railways to cease operating boats on the Great Lakes, it impaired the service rendered the shippers without benefiting the independent boat lines. As long as the Interstate Commerce Commission has such great authority in respect to rates and general transportation practices, it ought to be competent to determine the conditions under which the railroads could be permitted to use the waterways in such a manner as to further the most efficient and economical handling of the transportation of the country.

The officers of the railroads and the water lines, in cooperation with the Interstate Commerce Commission, should be able to determine whether it would be more economical and beneficial to the country for certain traffic to be handled by rail or by water. The argument often is made in favor of waterway development that it would relieve railways of their bulky, low grade traffic, which, it is contended, is handled at a loss. Many persons even use the word "cooperation" as if it means that the railroads voluntarily should turn over part of their business to the waterways, and especially this low grade traffic, such as lumber, grain and coal. The fact is that if any large railroad system were relieved of all of its low grade tonnage the returns from its remaining business would not permit its continuing operation. It is the low grade business which can be handled in large trainloads at slow speeds, and at a cost much less than that of handling high grade traffic; and because this low grade traffic can be handled at low cost it is often the most profitable part of a railroad's business. Proper development of waterways and co-ordination with the railways would result, as I have tried to point out, not merely in the transfer of part of the business of the railroads to parallel waterways, but in the development of waterways and railways as parts of a single transportation system, each handling the business in those places where it could do it most efficiently and economically.

A comprehensive study of the development and use of waterways and railways not as competitive, but as co-ordinate and complementary parts of a single transportation system, would prevent in future many mistakes which have been made in the past. If the same company owned both a rail and water line there would not be competition between them which would be carried on until one or the other was driven out. The railway would be able to develop the service of its boat line to whatever extent experience might show was necessary to help its railway lines carry business in seasons of heavy traffic, without developing either rail or water facilities to such an extent as to result in large economic waste. Of course, where railways own boat lines they are more likely to use them as connections and feeders for bringing to their rail lines traffic that they might otherwise be unable to get, than in rendering water service which would merely parallel and duplicate their rail service.

I am unable to see any difference in principle between railroads being permitted to own and operate boats upon inland waterways and their being permitted to own and operate motor trucks upon highways or streets. There are conditions in our large centers of population and industry owing to which it may be found more economical and efficient for the railways to own and use trucks to pick up and deliver freight to yards at outlying points than to continue the practice of loading merchandise at large central warehouses and switching the cars to freight houses for reclassification and distribution. No one, I suppose, would question that it is the right and duty of the railroads to acquire trucks and use them over highways and streets if this will enable them to render more economical and efficient service. If a railway may properly use motor trucks at one end of its line, can there be any valid reason why it should not be allowed to own and operate boats from the other end of its lines if this will enable it to render more economical and efficient service? Nevertheless, as you know, while there are no legislative restrictions upon the ownership and use of motor trucks by railways, there are legislative restrictions upon their ownership and use of water carriers. The main thing I have sought to emphasize has been the necessity for the development of a comprehensive and constructive transportation policy which will include highways, railways and inland waterways, and which will result in such co-ordination of all these means of transportation as will cause the commerce of the entire nation to be handled with the utmost efficiency and economy.

Necessity for Fair and Constructive Policy

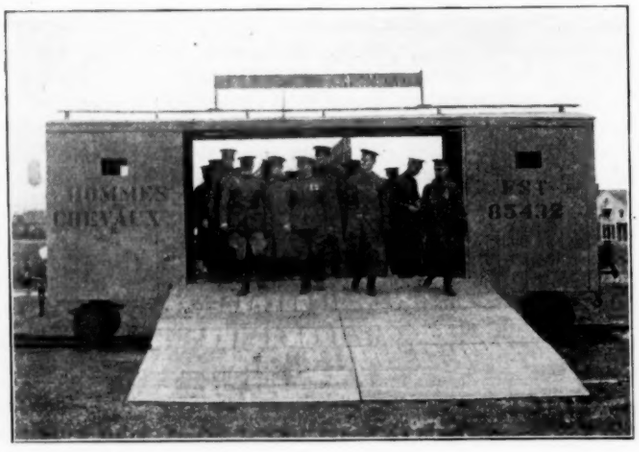
We have entered a new epoch in our country's history—one in which the greatest efficiency in production will be necessary to enable us to provide, by our domestic industry and our domestic and foreign commerce, the necessities, comforts and luxuries needed for the welfare of our people.

Transportation is one of the most important factors in industry and commerce. Therefore, upon the adequacy, efficiency and economy of our transportation service will largely depend the future welfare of our people. I know that many persons, including many advocates of the development of inland waterways, are disposed to regard with suspicion and questionings the policy of the railroads and any suggestions concerning a national transportation policy which may come from a railroad source. Undoubtedly, there have been reasons for this. I am not contending that the policy pursued by the railroads in relation to waterways or many other matters always has been right. I admit there have been abuses in their management, and that some of these have risen in their relations with the water carriers. I also believe, however, and think you will agree with me, that many millions of dollars have been wasted in efforts to promote navigation on some of our inland waterways which would not have been wasted if a constructive policy in dealing with this important question of transportation had been pursued; and what I am now advocating is the adoption of a policy of developing and using the waterways which will recognize the fundamental principle that traffic should be permitted to move by that route, whether highway, rail or water, which is in fact the most efficient and economical.

In this connection, reference should be made to a provision of the Transportation Act of 1920, which applies only to railways, but which is predicated on a principle which seems equally applicable to waterways. The Transportation Act provides that no railway shall in future construct any new line of railroad, or extend any old line, without first obtaining from the Interstate Commerce Commission a certificate that the present or future convenience and necessity of the public require, or will require, the construction and operation of the new or extended line. The purpose of this provision is to prevent increase of railway facilities when and where the means of transportation already provided are suffi-

cient, and when and where, therefore, increase of them would impose an unnecessary burden upon the public. Doubtless in the administration of this provision the commission would refuse authority to construct a railway line paralleling a waterway, if the waterway already was able to render all the transportation service public necessity and convenience required. From the standpoint of the economic welfare of the public, unnecessary duplication of transportation service by rail lines is no more undesirable than unnecessary duplication of service by water and rail lines. If, as Congress has decided, the Interstate Commerce Commission is the best authority to determine where additional railway lines are, or are not, needed, it seems to follow that it would be the best authority to determine where additional water transportation service was or was not needed. I raise for your consideration, therefore, the question whether the future development of transportation service by water as well as by rail ought not to be placed under the general supervision of the Interstate Commerce Commission by so amending the Transportation Act as to provide that before any waterway is constructed, improved or extended, a certificate must be obtained from the Commission to the effect that the public convenience and necessity require its construction, improvement or extension. Only in some such way, it would appear, can co-ordination in the development as well as in the operation of the railways and waterways be brought about which will in the greatest measure promote the public interest.

Speaking for the railroad system I represent, we are ready to co-operate with the waterways in every legitimate and useful way. I am not prepared to say we will turn traffic over to them which we can handle, and which we believe we can handle better than they can, but to the extent that the patrons of our railroad desire us to work in co-operation with the waterways I am prepared to say that we will participate in every reasonable arrangement that may be suggested for the establishment of through rates and through routes by rail and water, and for the transfer of freight between the rail and the water carriers. The Transportation Act, as I have already indicated, permits railway officers to take a somewhat more detached view of the general transportation problem than they could in the past, and, as public spirited citizens, the owners and officers of the railways consider it their duty to co-operate in future with all who are striving to promote a general transportation policy which will further the best interests of all the people and all sections of the country.



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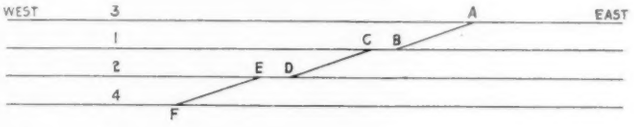
A Memory of French Transportation at the First Division Reunion at Camp Dix. General Pershing May Be Seen in the Foreground

Report on Erie Collision

THE INTERSTATE COMMERCE COMMISSION has issued a report, dated November 9 and signed by W. P. Borland, Chief of the Bureau of Safety, on the collision at Erie, Pa., on the New York Central, on October 20, when eight passengers were killed and 18 passengers, three employees and one Pullman porter were injured. This accident was briefly noticed in the *Railway Age* of October 2, page 715.

The collision occurred about 10:39 a. m. just west of the Erie station while both trains were moving at low speed, about 15 miles an hour. The line is four-track and the general situation is indicated in the sketch. Eastbound train No. 60 ran into the side of westbound train No. 23 and one sleeping car of the westbound train was overturned, one side being torn out. Both trains were made up of steel cars. The switches are not interlocked and train No. 60, on track No. 2, was turned to the left at switch *D* which was left misplaced.



About fifteen minutes before the time of the collision a locomotive had been moved westward through the crossovers from *A* to *F* and then eastward on track No. 4; and Switchtender Bell, riding eastward on this engine, left switches *D* and *E* to be set straight by Signal-maintainer Larson, who was working at that point, renewing a switch box. It appears that the maintainer straightened one switch, *E*, but did not straighten *D*; and he says he did not promise to attend to both. Bell assumed that Larson would attend to both and that was the primary cause of the collision. The line is equipped with automatic block signals and there is a signal 220 ft. west of the switch that was open; but this signal indicated all-clear because Larson had cut out the circuit breaker, which, if undisturbed, would have caused the automatic signal to indicate stop. Train No. 60, therefore, received a false clear indication. The weather was clear and there appears to have been nothing to obstruct the engineman's vision, but he did not see either the switch target (which was on the left-hand side of the engine) or the switch rails which were in the wrong position; neither the engineman nor the fireman realized the situation until their engine actually entered the crossover. The fireman was sitting on his seat box at the time.

Signal-maintainer Larson has an experience of several years, and a good record. He had with him two assistants, Carlson and Truax, neither of whom seems to have understood the importance of the circuit breaker in the switch box. All three of these men saw the clear indication of the block signal and one of them was within three feet of the misplaced switch; but apparently they took no interest in the position of the switch rails. Truax knew that switch *D* had been opened and left open, but this fact had apparently gone out of his mind before train No. 60 approached.

The report puts the blame primarily on Bell and Larson, but points out the neglect of Truax in not looking at the switch at which he was at work when train No. 60 approached. This man had been a helper for three years, but a maintainer only four days. Bell is twenty years of age and had been switch tender for about eighteen months, prior to which he was a yard clerk.

THE AMERICAN ASSOCIATION OF ENGINEERS will hold a national conference on engineering publicity. February 25, 1921, has been tentatively selected as the date for this meeting.

The Payment of Wages by Divisional Paymasters*

Prompt and Efficient Payments Effected on the Seaboard Air Line by Use of a New Check System

By T. W. Mathews
Assistant Treasurer, Seaboard Air Line

MOST RAILROADS now pay a majority of their employees by check. Some roads have been using pay checks for 20 years or more. The argument as to which is the best method, cash or pay check, has been largely settled in favor of the pay check. It is contended that the pay check method is cheapest. The cash payment adherents are inclined to contest this point. Their arguments, however, have been weakened considerably by the increased cost of train service and the impossibility of running two pay trains each month. Practically all roads now pay semi-monthly, which require one pay train and crew continuously for each 1,000 miles of line. There is also, the constant objection to cash payment because of the danger inherent in the handling of large sums of money.

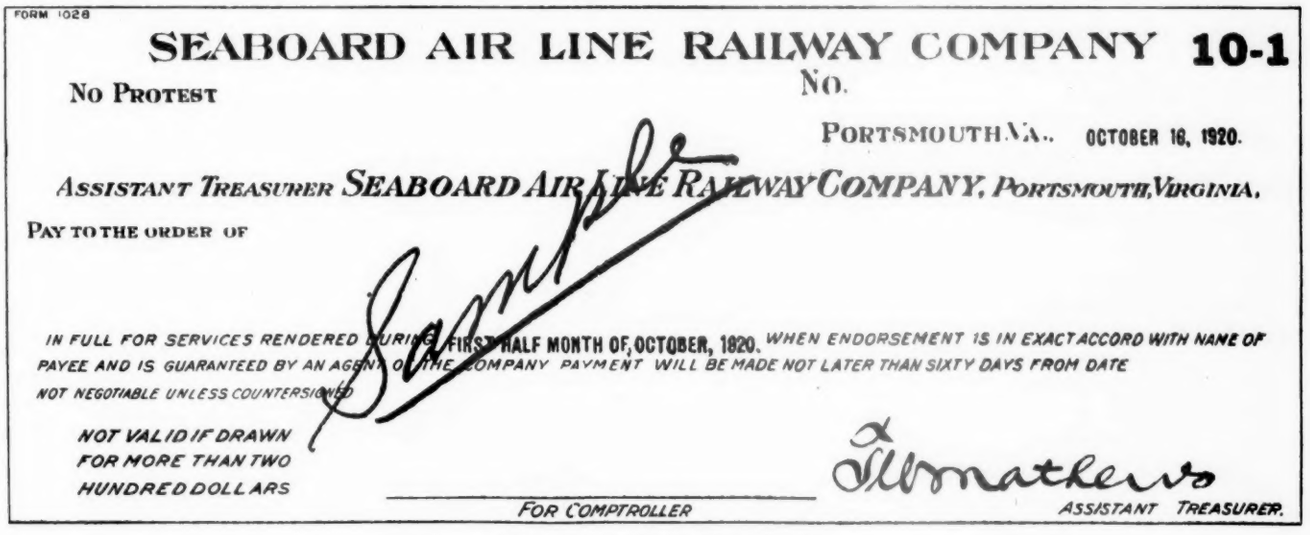
The advantage of cash methods over the pay check system has been the delivery of the cash to the employee by the paymaster. On some roads the pay checks have been delivered by pay car, while on others occasional surprise deliveries, as it were, have been made by paymasters. This is done to keep down the practice of putting straw men on the rolls for the unlawful profit of the foreman or some other person, and in this respect, a system by which the cash or pay check is delivered directly to the employee by the paymaster is much the best plan.

On most large roads where pay checks are used, these are made out at a central point and sent out by express or railroad mail to agents at all stations who thus become paymasters. This plan is all right at small stations, but not a good one at points where several hundred men are employed or have their division headquarters. It will be found at such large stations that the agent is spending a large number of hours as paymaster, or he may be using most of the time of a cashier, or assistant cashier, for paying off. Another objection at such points is that the employees paying off are in the operating department, and have not the same interest as a treasury department employee would have. Care is not always taken to see that checks are delivered to the payee, or to others under proper circumstances, or to see that bona fide employees are being paid, and not "straw" men.

On the Seaboard Air Line, the general offices are nearly 900 miles from one division headquarters, and over 600 miles from others. Other roads may have to contend with greater distances. Payrolls were formerly sent in to general office twice each month, and pay checks written and sent out to the station agents twice each month as above described. This plan caused considerable congestion.

On this railroad we now have a division paymaster on each division. He is a direct representative of the treasury department, and numerous benefits are anticipated from this arrangement. In any event, the superintendent and other division officers are in closer touch with the treasury department, and the treasury department is closer in touch with the men who are being paid. By this plan of decentralization pay checks are under preparation all over the system at the same time, and twice each month on the 12th and 27th we are able to pay our 20,000 employees on the same day. The plan now in operation enables seventy-five per cent of the checks to be delivered personally by the division paymaster. Moreover, it was previously the practice to put in the hands of a number of chief clerks a draft form to pay off employees who left the service ahead of pay day. These forms are now only issued by paymasters.

There are eight large shop, division and general office points on the Seaboard Air Line. The road is divided into two general superintendent's districts. There is a paymaster for each of the two districts with eight division paymasters—four for each district. On heavy divisions the division paymaster has one clerk. With five clerks in the general office,


FORM 1028

SEABOARD AIR LINE RAILWAY COMPANY 10-1

No Protest

No.

PORTSMOUTH VA., OCTOBER 16, 1920.

ASSISTANT TREASURER SEABOARD AIR LINE RAILWAY COMPANY, PORTSMOUTH, VIRGINIA.

PAY TO THE ORDER OF

IN FULL FOR SERVICES RENDERED DURING FIRST HALF MONTH OF OCTOBER, 1920. WHEN ENDORSEMENT IS IN EXACT ACCORD WITH NAME OF PAYEE AND IS GUARANTEED BY AN AGENT OF THE COMPANY PAYMENT WILL BE MADE NOT LATER THAN SIXTY DAYS FROM DATE

NOT NEGOTIABLE UNLESS COUNTERSIGNED

NOT VALID IF DRAWN FOR MORE THAN TWO HUNDRED DOLLARS

FOR COMPTROLLER

ASSISTANT TREASURER.

Fig. 1. A Sample Pay Check

*Abstract of a paper read before the annual meeting of the Society of Railway Financial Officers at Richmond, Va., November 10 to 12, 1920.

including one adding machine clerk in the accounting department, a total of 20 employees have to do with pay check preparation, delivery or accounting. This involves 40,000 pay checks each month. This same force pays weekly labor in cash at eight points and has taken care of the delivery of liberty bonds to 30,000 subscribers.

From time to time without advance notice the paymaster takes the checks for a section of his territory and delivers them personally from a motor car, or local train. Even a surprise check of one or two stations has its effect on the entire territory.

The paymaster takes the pay roll along with him, and frequently the division auditor goes along. The employees shown on the roll are seen personally and questioned as to the time made by each. All apparent discrepancies are carefully considered. A copy of the circular of instructions to agents who are sent pay checks to deliver is handed to the agent by the paymaster. These instructions are read over carefully so as to see that they are understood by the agent.

SEABOARD AIR LINE RAILWAY COMPANY

Register of Pay Checks for_____ PERIOD of_____

SERIES_____ _____ Division Name of Roll_____

No.	Amount	Date Paid	No.	Amount	Date Paid	No.	Amount	Date Paid	No.	Amount	Date Paid
00			25			50			75		
01			26			51			76		
23			48			73			98		
24			49			74			99		

Fig. 2. Register of Pay Checks

The instructions to agents on the Seaboard Air Line are as follows:

1. Pay checks sent to an agent should be delivered by him, the cashier or a bonded member of the force, to the persons in whose favor drawn, and to no one else.
2. An employee delivering a check to the wrong person will be held responsible under his bond. The duty of distributing checks is a responsible one, for in this you are acting as a paymaster of the company.
3. An effort should be made to deliver checks to the employees promptly but before making any delivery agents must satisfy themselves of the identity of the payee. Should there be any doubt on this point, check must be withheld and application made to division paymaster for instructions, giving full particulars.
4. Roadway laborers must be identified by section foreman, who must sign as witness to "his mark" signatures. Shopmen must be identified by timekeeper who must sign as witness to "his mark" signatures.
5. Checks must be endorsed by payee in presence of agent and signature guaranteed by agent.
6. The signature must correspond exactly with the name of the payee as written on the face of the check. If a check is not drawn properly return it to division paymaster for correction. Signatures by cross mark must be witnessed in addition to the guarantee.
7. Under no circumstances should an agent guarantee a check until it is endorsed by the payee. Guarantee must be in writing, never by stamp signature.
8. When practicable employees should be paid in the presence of employees who work with them. The names and amounts should be called out, which aids in identification and serves to detect errors.
9. Great care should be used in seeing that employees absent at the regular time of distribution are bonafide employees before checks are finally delivered.
10. Orders of absentees must not be recognized except when duly authorized by the division paymaster. Under no circumstances may checks except their own be delivered to foremen or others who hire men or prepare time.
11. Checks may be forwarded to other stations by express for delivery, with a letter of enclosure. Paymaster must be notified on form provided.
12. Every pay check not delivered in two weeks must be returned to the division paymaster by express stating why not delivered.

SEABOARD AIR LINE RAILWAY COMPANY

Register of Pay Certificates for_____ PERIOD of_____

_____ Division

Name of Roll	Number	Amount	Date Paid	Name of Roll	Number	Amount	Date Paid

Fig. 3. Separate Register of Time Checks and Pay Certificates

A brief description as to how the checks are prepared, and how the account is kept and balanced may be of interest. A pay check (Fig. 1) is used which is numbered by the printer. The number is split much the same as on automobile licenses. This saves much time in putting checks in consecutive order. We do not find it necessary to use a roll and line number, nor

to show the occupation. One line is provided for the name and one other line for both the written and figure amounts.

All pay rolls are made at division headquarters by division auditors, and audited there. They were formerly made under supervision of the chief clerk to the superintendent. So our plan could be followed where the division auditor plan is not in effect. Pay rolls in duplicate are delivered to division paymasters all over the system on scheduled dates. The names are typewritten on the checks by the paymasters, except at the largest point, where an addressograph is used. The amounts are put in by a check writing machine which prints both the written and the figure amounts at one operation. This saves a double verification, as mechanically the two amounts cannot be different. This machine uses chemical ink, which makes raising difficult even by an expert. A patent copy holder machine is used to hold the rolls before the operator for entering both the names and amounts, and is found to be a great help.

The checks are called back by the clerk to the division paymaster to verify the accuracy of names and amounts. The first and last check number are entered at the top of each pay roll page. Checks are not issued for amounts previously paid by time checks or pay certificates. Checks are next listed on the register sheet (Fig. 2) by the adding machine. The register sheet has the numbers 0 to 99 printed in four columns of 25 numbers each, which makes it necessary to record only the century series at the top of the page instead of printing the individual check numbers. A separate form (Fig. 3) is used to list the time checks and pay certificates. A balance of all checks and rolls is made on a recapitulation sheet (Fig. 4).

Checks bear a fac-simile signature of the assistant treasurer, and after being completed and balanced are countersigned by the division auditor. They were countersigned by the chief clerk to the superintendent before the division auditor system was installed. This countersigning is done with a multigraph fac-simile at the largest point. Checks are now ready for personal delivery by the division paymaster or to be sent to station agents. The pay check register sheets, time check and pay certificate sheets and recapitulation sheet are sent to the general paymaster's office on pay day and are there ready to be marked paid as the pay checks come in from the banks. Original pay rolls are sent on the same day to the auditor of disbursements. In former years it was thought necessary to list to each agent the checks to be delivered by him, giving number and amount. The pay roll, of course, shows where the checks are to be sent. A card (Fig. 5) is used which merely states that so many checks are enclosed and which calls for a report as to delivery or return of checks. A record is kept of the number of checks sent each station, and the agent is required to make his report in two weeks.

The Seaboard Air Line pay checks are all drafts on the assistant treasurer at headquarters, and on the back appear the names of 25 local depositary banks at which they may

SEABOARD AIR LINE RAILWAY CO.

Recapitulation of Pay Checks and Pay Certificates for_____ PERIOD of_____

_____ Division

Name of Roll	Check Numbers		Net Amount of Roll		Amount of Pay Check		Amount of Pay Certificates	
	From	To						

Fig. 4. Recapitulation Sheet

Form 1062—Revised

This Form is to be Returned to the Division Paymaster not later than_____ (Be sure you receive the correct number of checks.)

Division Paymaster,

I have received_____ pay checks sent me by you. The checks have been delivered by me, or by those authorized by me, directly to the persons in whose favor they are drawn, except as noted below.

Name_____

Title_____ Station_____

CHECKS RETURNED HEREWITH			CHECKS RETURNED HEREWITH			CHECKS FORWARDED ELSEWHERE		
CHECK No.	AMOUNT	WHY RETURNED	CHECK No.	AMOUNT	WHY RETURNED	CHECK No.	AMOUNT	SENT TO

IF YOU RECEIVE CHECKS LISTED HEREON THAT IN YOUR OPINION BELONG ELSEWHERE WIRE DIVISION PAYMASTER AT ONCE, ASKING DISPOSITION.

Fig. 5. Agent's Report of Checks Not Delivered

be cashed. The checks, therefore, all come into the assistant treasurer's office from the various banks. From the usual analysis of the bank letters the total of pay checks for the day are determined. A careful examination of endorsements is made. The checks are then placed in consecutive order. Here is where the automobile license number scheme is very helpful. The amounts of the checks are now listed on an adding machine tape and if the total proves for the day, the assistant treasurer's office is through with them.

The checks now go to the paymaster, where as they are paid they are stamped off the morning following the day they are paid. This is done from the original check to the register sheets made by the division paymaster, and previously referred to as having been sent in on pay day. The checks for each month are placed in consecutive order each day after being posted on the registers. Checks are limited as to payment to 60 days. At the end of this time a list is drawn off the registers showing the checks remaining unpaid. The total of this list, of course, must balance with the difference between the total of all pay checks issued for the month and the total paid for the month. We are now ready to dispose of the pay checks and they are all turned over to the auditor of disbursements with the list of unpaid items. In the office of the auditor of disbursements an adding machine clerk makes a tape of all pay checks paid for the particular month. When this total agrees with the total as shown by the assistant treasurer on the cash book the accounting department has audited the account as completely as could be done in any more laborious or detailed way.

It is believed that in this plan for the establishment of division paymasters a great improvement has been effected in the pay system on the Seaboard Air Line without burdening the company with additional expense.

Annual Report of the Postmaster General

WASHINGTON, D. C.

THE ANNUAL REPORT to Congress of the Postmaster General for the fiscal year ending June 30, 1920, attributes a part of the deficit of $17,172,396 incurred during the year to the decision of the Interstate Commerce Commission increasing the compensation of the railroads for mail transportation, although he places most of the responsibility on Congress for increasing the salaries of postal employees. The commission's decision, the Postmaster General says, required additional payments aggregating $8,103,889 for the transportation of mail in prior years, because the decision was retroactive to November 1, 1916. The report does not give the amount of the increase in payments to railroads, but a statistical appendix estimates the net payments for a year, based on the service authorized as of June 30, 1920, at $83,731,068. The compensation of the railroads for the fiscal year ending June 30, 1920, is reported as $70,714,391, of which $14,633,607 was on account of previous fiscal years. "This sum," the report says, "is far in excess of what was anticipated by anyone at the time the act of July 28, 1916, was passed, as the increase is directly chargeable to the increased cost of operation of the railroads growing out of the World War." A resume of the further comments of the report on the commission's decision follows:

"The result of the long investigation and test of operation under the system is a complete vindication of the department's contention for the space-basis system. In its decision and order the commission approved the space-basis system as inaugurated under authority of the act of July 28, 1916, and directed its continuance and its extension to all railroad mail routes. As they did before the committees of Congress, the railroads opposed the system before the commission also; but the results of the application of the system to the service justified all the claims made by the department for it, notwithstanding the very trying and unfavorable railroad operating conditions arising out of the war.

"The order of the commission directs a substantial increase in the aggregate pay to the railroads. When the legislation was urged upon the Congress by the department for an improved system of authorizing and paying for railroad mail service, the pre-war conditions prevailed, and under them it was believed that the railroads were being overpaid for the service if placed upon the most economical basis of authorization but still insuring an entirely adequate transportation service. While by reason of the radical changes in railroad operating conditions and in the cost of operation the result of the investigation increases the mail pay, it is demonstrable therefrom that the department's contention was correct. The apportionment of unallocated costs on car-mile ratios was materially affected by the reductions in the rates of increase in car-miles in the railroad service as a whole and in the passenger service particularly. The mails suffered in every instance, for the relative estimated cost of the passenger service per car-mile increased thereby, and, as the passenger service failed to maintain its normal ratio of car-mile increase while the mails maintained normal volume and took over a large addition from express, the mail car-mile ratio was consequently abnormally increased. Cost ascertainments based upon these ratios abnormally increased the estimate for the mails. Furthermore, there are many general expenses in which the mails are in no degree interested.

"It is indisputable that incidental to the prosecution of the World War material changes in industrial conditions were taking place, and the cost of transportation, in common with other costs, was steadily increasing. The department, however, insists that the rates fixed are too high, even under the circumstances related, and at once petitioned the Interstate Commerce Commission for a rehearing of the case in accordance with the provisions of the statute, and it is believed that the operation of the service under the new rates will demonstrate that they are excessive and illogical, and that the commission will ultimately make equitable adjustment.

"As to the rates so fixed for the mail service, the department in its petition last mentioned did not complain of the increased cost resulting from increased cost of operation, but did complain with respect to the basic rate applying prior to January 1, 1918, and which became the base for the 25 per cent increase thereafter."

About the railway mail service, the report says, in part:

"During the past fiscal year the railway mail service was subjected to the severest transportation test in its history. The several strikes of express companies' employees and the strike of railroad switchmen last spring caused the already large volume of parcel post to be increased 30 to 50 per cent in the larger area of the country, and in some sections the increase was more than 100 per cent. However, the railway mail service had undergone a thorough reorganization in placing it upon a scientific and businesslike footing permitted by the space system and as a result it was possible to respond to the most extraordinary demands, and tons of merchandise, formerly moved by express and freight, were transported more expeditiously than such shipments were ever handled by the express companies. At certain periods when other traffic was caught in jams, resulting in delays of weeks, there was no congestion or delays in the railway mail service which were not broken within 24 hours. The best evidence of this is the fact that the larger part of the traffic that was thrown to the parcel post continues to be handled by the postal service.

"With the rapid growth of the parcel post system after the revision of the weight limit and a reduction of the rates by the present postal administration, radical changes in the distribution and transportation schemes were necessary if the enormous volume of this mail was to be handled satisfactorily and on a sufficiently economical basis to maintain the reduced scale of rates.

"It is the policy to take advantage of the best schedules for the despatch and distribution of mail matter and in this connection it is well to again call attention to the fact that the Post Office Department has no jurisdiction over the fixing of schedules. This is a matter exclusively within the control of the railroad companies. Neither has the department any power to enforce the maintenance of schedules. Trains formerly operated on fast schedules carrying mails are not now operated at all, or they are operated on a schedule so much slower as to miss connections formerly made. It has been represented by certain interests that these trains would not have been withdrawn or placed upon a slower schedule had the department not reduced the space devoted to the handling of the mails. A single instance cannot be shown where the space was reduced to less than actual needs of the service. That the transportation of the mails is profitable is proven by the fact that in practically every case where the volume of mails was sufficient to constitute the major volume of the traffic of any train, such train is still operated on practically the same fast schedule.

"The service rendered by the railroads has steadily improved over that rendered during the war. However, there is yet room for improvement, especially with respect to the practice of railroad officials to order the departure of trains on schedule time even though letter mails for connecting trains in the same station may not be loaded. Statistics for the 4-week period, February 15 to March 13, 1920, show that there were 518 departures of trains where letter mails from connecting trains were in process of being loaded, involving a total of 143,410 pouches, 911,709 sacks, and 138,423 outside parcel post and newsdealers' packages. It is estimated that each pouch contained 40 packages of letters with 40 letters in each package, aggregating 229,456,000 letters, or a daily average of 8,194,857 letters. It is estimated that 48,320,577 papers were delayed, or a daily average of 1,725,734 papers. The delays aggregated 1 to 24 hours.

"Immediately after the calling of the strike by railroad switchmen last spring, telegraphic instructions to field officers were issued directing that reports be submitted by wire regarding any interference directly or indirectly with the transmission of the mails in violation of the law, together with names of persons responsible. They were also directed to bring such cases to attention of local United States district attorneys with request that offenders be prosecuted for obstruction of the mails, if the facts warranted. As a result of the vigorous action insisted upon by the Post Office Department there were but few violations of the law and with these exceptions the mails were moved with practically no delay. The co-operation of the railroad officials and the large body of railroad employees who did not join the strikers was of inestimable value in preventing unlawful interference with the mails."

Freight Car Loading Shows Gain for Week

WASHINGTON, D. C.

FREIGHT CAR LOADING for the week ending December 4 nearly recovered the loss of the previous week, which included the Thanksgiving Day holiday, according to the report compiled by the Car Service Division of the American Railway Association. The total number of revenue cars loaded was 872,162, as compared with 797,673 the week before and 880,528 the week of November 20. For the corresponding week of 1919 the loading was 789,286 and for 1918 it was 837,806. As compared with 1919 this year's figure for the week represents an increase of 83,000 cars but this was more than covered by the increase of 108,000 cars in coal loading as compared with last year when the miners were on strike.

As compared with the corresponding week of 1919 increases in loading were shown in all districts except the Pocahontas and Northwestern, but there were decreases for all classes of commodities except coal, coke and ore. The summary is as follows:

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO, FOR WEEK ENDED SATURDAY, DECEMBER 4, 1920

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L. C. L.	Miscellaneous	Total Revenue Freight Loaded: This year, 1920	Corresponding year, 1919	Corresponding year, 1918	Received from Connections: This year, 1920	Corresponding year, 1919	Corresponding year, 1918
Eastern	1920	6,391	3,718	60,454	2,790	6,421	7,092	45,994	78,629	211,489	.....	.....	236,788	.....	.....
	1919	6,714	4,431	29,672	4,080	7,935	2,269	35,013	102,905	.....	193,018	202,369	.....	220,189	225,983
Allegheny	1920	3,118	3,132	68,942	8,286	3,696	8,723	37,005	61,114	194,016	.....	.....	128,968	.....	.....
	1919	2,923	3,546	32,917	4,598	4,929	5,175	41,643	68,777	.....	164,560	190,988	.....	113,737	165,154
Pocahontas	1920	97	140	21,014	611	1,701	124	2,585	6,047	32,319	.....	.....	16,476	.....	.....
	1919	195	174	23,850	531	2,231	515	170	9,928	.....	37,395	35,981	.....	19,535	19,105
Southern	1920	2,997	2,233	33,241	1,277	16,912	2,296	37,138	33,616	129,714	.....	.....	68,615	.....	.....
	1919	3,095	3,253	14,412	232	19,647	2,762	19,636	57,923	.....	120,980	115,473	.....	76,282	70,564
Northwestern	1920	11,676	8,924	10,851	1,498	13,529	6,189	26,617	29,345	108,629	.....	.....	47,666	.....	.....
	1919	12,370	10,658	11,106	478	14,361	1,829	21,118	37,532	.....	109,452	120,860	.....	50,984	72,410
Central Western	1920	9,118	10,628	27,880	457	4,043	2,240	29,591	41,016	124,973	.....	.....	59,285	.....	.....
	1919	10,700	14,452	8,189	448	4,473	2,692	21,668	45,525	.....	108,145	115,739	.....	62,317	59,404
Southwestern	1920	3,712	2,126	7,846	724	7,669	529	16,641	31,775	71,022	.....	.....	48,078	.....	.....
	1919	3,686	3,060	1,623	550	5,901	732	14,980	25,244	.....	55,756	56,396	.....	46,306	45,138
Total all roads	1920	37,109	30,903	230,228	18,843	53,971	27,195	195,571	281,542	87,162	.....	.....	605,876	.....	.....
	1919	39,734	39,574	121,768	10,915	59,477	15,774	154,210	347,834	.....	789,286	.....	.....	589,350	.....
	1918	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	837,806	.....	.....	657,758
Increase compared	1919	.....	.....	108,460	4,723	.....	11,421	41,361	.....	82,876	.....	.....	16,526	.....	.....
Decrease compared	1919	2,625	8,571	.....	.....	5,506	.....	.....	66,292	.....	.....	.....	.....	.....	.....
Increase compared	1918	.....	.....	.....	.....	.....	.....	.....	.....	34,358	.....	.....	.....	.....	.....
Decrease compared	1918	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51,882	.....	.....

*L. C. L. merchandise loading figures for 1920 and 1919 are not comparable as some roads are not able to separate their L. C. L. freight and miscellaneous of 1919. Add merchandise and miscellaneous columns to get a fair comparison.

Preliminary estimates for the week ending December 11 indicate a new record for the year in the production and transportation of bituminous coal, 233,568 car loads or 12,850,000 tons, as compared with 12,757,000 tons the week before.

Since the car shortage has given way to a considerable car surplus greater progress is being made in the return of cars to the home roads. On December 1, according to the reports compiled by the Car Service Division, 35.5 per cent of the

freight cars were on home lines, an increase of 4.2 per cent, or about 100,000 cars, in a month. On March 1 when the roads were returned only 21.9 per cent of the cars were at home. Some roads that have been short of cars nearly all year are now finding their own cars returning to their lines somewhat faster than they like, and there has been on some roads a scramble to get rid of empty cars owned by other lines, in order to avoid the payment of per diem charges, somewhat akin to the efforts made earlier in the year to get and retain cars. There have also been some complaints of instances of refusal or unwillingness on the part of certain roads to accept empty cars, which the Car Service Division has been asked to adjust.

Freight car accumulations for the week ending December 3 show a further reduction to 21,991, or 4,333 cars less than were reported for the previous week. These figures included 7,368 cars held either for export or for coastwise movement.

In reply to a Senate resolution by which the Interstate Commerce Commission was directed to "furnish at the earliest possible date information to the Senate showing the causes for the present freight congestion in the principal cities of the United States and what efforts have been taken or are being taken or should be taken to relieve the present congested condition and to promptly move the freight tendered to the railroads," the commission has submitted a report saying that in its annual report to the Senate and House of Representatives will be found a discussion of the causes of the freight congestion and a statement of the efforts made to relieve such condition and to move promptly freight tendered to the railroads, the steps taken to provide the administrative machinery to deal with car service matters, also a report as to the administration of the revolving fund created by section 210, Transportation Act, 1920, and a list of the loans made by the United States to carriers to aid in the acquisition of locomotives and cars and in the making of other additions and betterments.

"It is believed that the commission's annual report, and particularly the portions above cited, gives the information called for by the resolution," the report says. "We add that since our 34th annual report was prepared the progressive amelioration of the emergency conditions which had previously existed warranted the suspension of Service Orders Nos. 20 and 21, effective November 21 and November 24, respectively; and the discontinuance of the remaining terminal committees described in the report."

Boards of Adjustment to Be Abolished

JOHN BARTON PAYNE, director general of railroads, has issued a circular announcing the abolition of the boards of adjustment created by the Railroad Administration as follows:

"A committee representing the Association of Railroad Executives has brought to my attention the fact that General Orders 13, 29 and 53 provide in terms that,

> 'Personal grievances and controversies arising under interpretation of wage agreements and all other disputes arising between officials of a railroad and its employees covered by this understanding will be handled in their usual manner by joint committees of the employees up to and including the chief operating officer of the railroad, (or some one officially designated by him.) If an agreement is not reached, the chairman of the joint committee of employees refers the matter to the chief executive officer of the organization concerned. If the contention of the employees' committee is approved by such executive officer, then the chief operating officer of the railroad and the chief executive officer of the organization concerned shall refer the matter with all supporting papers to the director of the Division of Labor of the U. S. Railroad Administration who will in turn present the case to the Railway Board of Adjustment, which board would promptly hear and decide the case, giving due notice to the chief operating officer of the railroad interested and to the chief executive officer of the organization concerned of the time set for the hearing.'

"That after the order of May 29, 1920, and amendment under which the time limit of July 15 was fixed within which claims growing out of the subject matter of said orders should be presented the claimants without complying with the procedure specified in said general orders presented their claims direct to the office of the director general and in view of this fact, none of the said claims are now properly before said adjustment boards.

"I have given careful consideration to each contention and am advised that if said contention is sustained, practically all of the cases now pending before Boards of Adjustment 1, 2 and 3 will fall and must fail of consideration.

"The point made by the representatives of the executives appears to me to be sound and there is nothing contained in the limitation order of May 29, 1920, changing the mode of procedure. But as I look upon the matter the railroads as such are not concerned in the pending claims, if the claims are limited, as in my judgment they must be limited, to the period of federal control. That is, it is for the director general to determine and to pass upon claims against the government by persons who were the employees of the government during the period of federal control and to provide for the payment of all just claims arising during federal control just as he must pass upon and provide for the payment of all other claims arising from federal control.

"If, however, the decision of these claims is to affect the railroads after the end of federal control, then the railroads have the right to insist upon a strict compliance with the terms of the said general orders.

"I am further advised that Board No. 1 will be able to dispose of all cases pending before it by February 15, that the number of cases pending before Boards 2 and 3 are so large that many months must elapse before said Boards could dispose of them.

"My conclusion, therefore, is that as to cases pending before Boards 2 and 3 some other means must be found to deal justly by the claimants as to any money due them arising out of federal control.

"The application of all decisions hereafter made to be limited in their effect to money due claimants between January 1, 1918, and March 1, 1920.

"It is, therefore, ordered that Board No. 1 be abolished as of February 15, 1921; that Board No. 2 and Board No. 3 be abolished as of January 10, 1921, i. e., by 30 days' notice as provided in said General Orders.

"Meantime, means will be provided to adequately, justly and promptly dispose of all claims which said boards may leave undisposed of."

S. M. ESTABROOK, manager of dining cars, hotels and restaurants on the Southern Pacific, described the development of dining car service on the Southern Pacific before a recent meeting of the Pacific Railway Club. Mr. Estabrook said that during 1919, the Southern Pacific served 3,000,000 patrons in its dining cars and an additional 3,000,000 in its hotels and steamer restaurants. In preparing food for this number, a ton and a half of potatoes a day were used, and it was estimated that 21,000 laying hens were required to furnish the eggs used.

The Citizen's Part in Railway Development

The Report of the Railway Business Association's Committee on Adequate Facilities

"A VITAL FACTOR [in the working out of the Transportation Act] will be the sense of responsibility felt by the individual citizen. It is essential that he sustain his co-operation whether he is a producer, a dealer, a consumer, an employee or otherwise one in a population dependent upon the prosperity of these groups for his own prosperity. Distress and loss due to inadequacy of [railway] facilities in the present period have given individual citizens reason to feel their stake. We can in due course judge whether their anxiety is sufficiently permanent or whether organization will be required to command their continued solicitude."

This paragraph is quoted from a report to the general executive committee of the Railway Business Association by that organization's committee on adequate facilities. The chairman of the committee is Knox Taylor, president of the Taylor-Wharton Iron & Steel Company, High Bridge, N. J. The report is submitted with idea of presenting for consideration "the question whether the time has not come for our association to seek among ourselves an outline of objects towards which our work should be aimed on the long view."

The report suggests the following conceptions to be brought to the attention of the public:

Improvements for Economy

(1) *Heavy investment in additions and betterments, with corresponding adjustment of income through economies or rates, or both, is the only means of getting ultimately to a lower rate level or even avoiding in the future a chronic condition of indefinitely rising rates.*

Arrearages of provision have long accumulated. Current effort has been concentrated upon devotion to catching up and making meantime the best of a crippled plant. Engineers have lacked both the courage and the audience to discuss forehanded railway plans which in industry would be regarded as a matter of course. Nobody has been bold enough to argue for a program on a scale which mathematical calculations indicate is essential, proposals having their limit in what is apprehended to be all that the public will sanction.

Up to a decade or more ago the outstanding phase of railway development was large investment in improvements as the basis of operating economies. Power of locomotives and capacity of cars were increased, with modernization of train-control appliances, elimination of grades and curves, multiplication of tracks, substitution of heavier rails, reconstruction of roadbed and bridges. The result was a heavy increase in the average train load, which is the unit of operating economy. In spite of rapidly advancing wages, the railway managers were able to postpone until 1910 any large-scale rate-advance applications.

CYCLE OF OPERATING COSTS

During that period, volume of traffic was increasing faster than railway capacity to haul it, even with the increased train load and the freer flow of traffic made possible by large outlays in the enlargement of terminals. This was itself a factor tending to offset the factors of rising cost per unit of work done, especially labor cost. Always in any business there is such a cycle. As volume grows and is transacted with existing facilities, other things being equal, the profit per unit rises. But in 1906 and 1907 the country had a sharp warning. Car shortages appeared, acting as a brake on production. To the discerning it became evident that the cycle had reached the point where further enlargement of traffic would require an expansion of railway facilities and plant, and that as this would naturally be undertaken on a scale designed to anticipate a considerable future growth of tonnage, the investment would be vast and the new fixed charges such a factor that income would have to be adjusted to carry it.

ASCERTAINMENT OF NEEDS

Such adjustment never took place. Every time there was a large-scale rate case the discussion turned on the past. The decision was based on estimates which did not contemplate any thoroughgoing modernization and enlargement. The adjustment enacted by Congress and ordered by the Interstate Commerce Commission in 1920 had little expansion in view. The estimates of the carriers were the amounts upon which they might in part catch up with arrearages and struggle through for a little longer. It was stated to the Commission on behalf of the railway managers that the rates which they were recommending would be insufficient to meet expected increases in cost of operation and establish railway credit, but that they hoped to make up the difference through economies. After a reasonable trial under the labor conditions which are now in process of being worked out the country should be in position to compare intelligently the resources which the roads must have in order to perform their work satisfactorily with the income which is actually realized from the rates as they are with such economies as prove feasible.

FOR A COMPREHENSIVE PROGRAM

Is it not essential that the hand-to-mouth fashion of providing railway facilities give way to a comprehensive plan, to be carried out over a period of years? The cost would have to be faced. Cannot the public be led to see that to make over the railway plant is the only route to economy and ultimate rate reduction, and that either through efficiency of the working force or, if that is insufficient, through further rate adjustments toward levels which obtain abroad, the users of transportation and the consumers of commodities carried must meet the cost of the modernizing and enlarging their railway system?

Great Need of Market for Stock

(2) *Investment in railway stocks should in the aggregate amount to at least half of the total railway capitalization.*

The normal method of financing any business is primarily and preferentially by the issue of stock. Bonds are sold when the amount required cannot be obtained on advantageous terms by sales of stock. Practically stock was half the railway capitalization until about 1902. Since then interest-bearing issues have steadily risen until recently the ratio has been 65 or more mortgages to 35 stock or less. We are habituated to this tendency. We hardly think of railway stock sales. The Transportation Act of 1920 and the rate adjustment under it appear to have strengthened the favor shown to railways by lenders, but the announcements and rumors regarding security flotations mention almost exclusively bonds, notes and equipment trusts.

REWARD FOR SUPERIORITY

If the ratio of funded debt to stock continues rising we may reach a condition where the credits almost own the roads. The stockholders' equity will be too small for whole-

some development. We shall have failed to restore the vital factor which gives individual ownership its superiority over government ownership. Bond-heavy capitalization is capitalization in which safety of principal and interest is emphasized disproportionately and hence in which there is enfeeblement of foresight, of courage and energy in preparation for expected business and in experimentation with new devices and methods. We need to enlist and retain first-class constructive ability in directorates and management. The requisite incentive is the fluctuation of profits responsive to superiority of administration.

Element of Adventure

To restore the 50-50 basis of capitalization opportunities for income must be adjusted, not to the ideas of theorists or other observers, but to the ideas of those whose stock subscriptions we seek. The Transportation Act of 1920 is designed to soften the retribution which overtakes the unfortunate road and to limit the return of the fortunate road. This was avowedly intended to diminish the element of adventure. Some think it has eliminated that element. If these apprehensions prove in any degree well-founded, then the act may be said to have aggravated rather than corrected one of the primary defects in the situation.

The tendency of bonds to gain on stock preceded bestowal on the Interstate Commerce Commission of power to fix rates, yet as late as 1920 we are trying a measure which assumes the permanent elimination of investment involving risk. Is it not obligatory upon business men earnestly and thoroughly to consider hope and risk as necessary conditions of success and survival for individual ownership and operation?

When the act as it stands has been tried for a period and the time comes, perhaps after substantial consolidations, to draw perfecting amendments, should not the business world be prepared to discuss with Congress the fundamental problem here indicated? And is not that problem the cardinal American problem of promoting excellence and progress by leaving individuals free to fail or succeed with corresponding retributions and rewards?

Facilities Stake in Buying Securities

(3) *Citizens in the communities have a facilities stake, in addition to any investment stake, in buying securities of their railroads.*

This country was developed prior to 1900 by building railroads before they were needed, stimulating the country's growth by giving the farmer new land and a market for his products and making a new demand for manufactures. Inhabitants of regions not previously served with transportation extended practical encouragement by investing in railway securities just as they would invest in any other instrumentality necessary for the development of their prosperity. For the past 10 years railway expansion has ceased and intensive modernization of existing lines has almost stopped. This is due to our delay in bringing the carriers, the public and their political representatives to an understanding of the national needs and interest. The public is finally arriving at some realization of the situation and Congress has decreed the roads a return intended to restore their credit.

Adequate Facilities Paramount

The unit of industrial, jobbing and farm competition is the population unit. Where two or more railways serve the same community they may compete among themselves, but primarily, taken together, they comprise an instrumentality with which the community competes for markets with other communities. The aggregate railway system of the United States and Canada, though maintaining interline competition, constitutes in this sense one instrumentality. Considered as a whole, the continental system must provide such a total supply of facilities that the quota for each individual community shall serve as a means of competition with other communities. There must be not only an adequate car supply fluid over the whole continent, but adequate and modern power, tracks, structures and terminals wherever materials or products move.

Those Who Have a Stake

Furnishing capital for railways was an obvious responsibility of citizens in pioneer days, when the communities demanded creation of railways where there was none. Revival of that pioneer spirit both for construction of new railways and for the modernization of the lines that we have was the theme of the notable "railway restoration dinner" of our association in March, 1920. The mimic share of stock which served as a menu card enumerated the elements in the country who have a stake in buying railway securities:

"Railway employees who desire an increase in the amount of railway work to be done, stockholders and employees of railway supply concerns who wish provision of railway facilities and development of mechanical and engineering railway progress to be American standard, owners and employees of agricultural, industrial and mercantile enterprises whose prosperity depends upon progressive and efficient transportation service, citizens of regions which are in competition with other regions for trade markets, domestic or foreign, and consumers of food, clothing and shelter who require new supplies of material through conquest of the wilderness."

Can we afford to neglect a well-considered program of discussion aimed at winning acceptance of this conception by those whose opportunity it is?

Citizens' Part in Fuller Use of Facilities

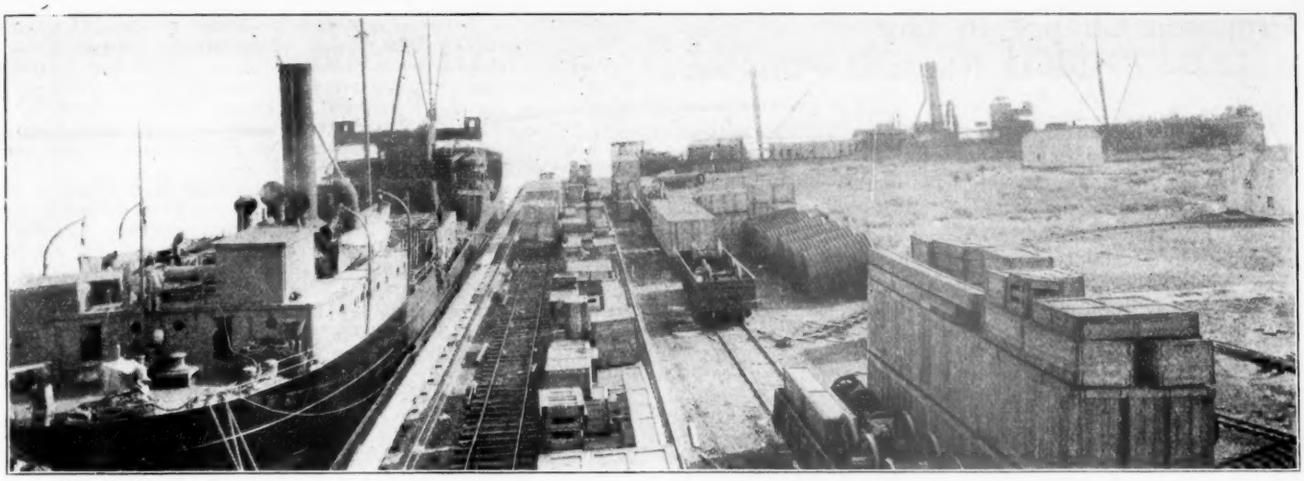
(4) *Citizens will most fully benefit from the lessons of current car shortage if they provide effective means of insuring that their enterprises and agencies automatically and continuously perform the citizen's part.*

The public can greatly assist the efforts of the railway managers. Such co-operation was highly beneficial before the armistice. During recent weeks it has been in part again developed. If every man in every industry, in trade and in agriculture would count himself a friend of the railways and make co-operation a matter of rigid routine, the present railroad facilities would be more fully utilized, giving the country the equivalent of large additions to railway plant long before new cars could be built. This can be done by increasing the minimum car load, by prompt loading and unloading, by curtailing free time, and by acquiescence in the reduction of freight train speed. There are state laws which could advantageously be repealed—notably those increasing needlessly the number of trainmen.

These efforts would give us all immediate relief. Their pertinence in this report is in the danger that freight-moving performance having notably improved our vows of future vigilance will fade like New Year's resolutions, and an opportunity be lost to establish firmly the habit of good will toward and effective protection for railway transportation, upon which the life and happiness of everyone in the country depends. How can such solicitude be made permanent?

On these several conceptions your Committee on Adequate Facilities hopes to arrange in due course for making available to our members the views of authorities specially qualified to aid the members of our association in reaching sound conclusions.

The Coming Administration has a good opportunity for strengthening the Interstate Commerce Commission.—*Providence Journal.*

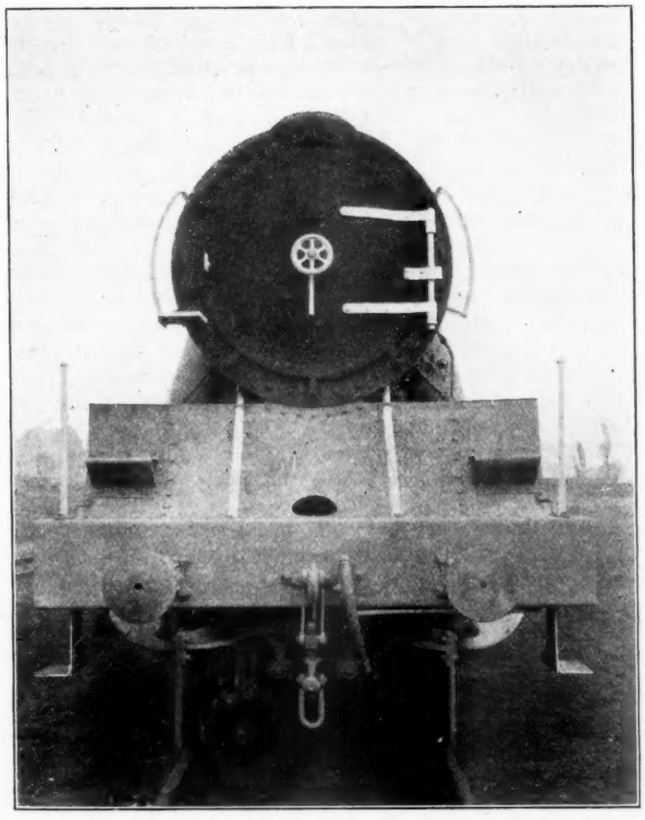


Partial Shipment of Locomotives Being Exported to Belgium

Belgian Locomotive Order Completed Promptly

Baldwin and American Locomotive Companies Complete Order in Advance of British Builders

THE RECENT COMPLETION of an order for 150 locomotives for the Belgian State Railways by American builders in advance of British manufacturers is a foreign trade item of unusual significance. The order for 150 locomotives



Front View of Locomotive Recently Exported to Belgium

placed in this country last winter was divided evenly between the American Locomotive Company and the Baldwin Locomotive Works in accordance with a standing agreement between these companies. At the same time an order for 200 locomotives of the same type was placed with one of the largest British manufacturers. It is understood that it was a condition of the recent loan to Belgium in which England participated that a portion of the order for these locomotives be placed in England. American builders, moreover, have furnished a portion of the steel castings required by the British builders including the cylinder castings, also the boiler plate, angle iron and sheeting.

The first of these locomotives was completed by the American Locomotive Company on March 1, which was within 52 days of the date on which the builders received complete information enabling them to proceed with the design of the locomotives. On June 1, this company completed the last of its portion of this order. The Baldwin Locomotive Works completed the last of the portion of the order assigned to them early in September. At this time none of the locomotives ordered from the British builders had been completed and the despatch with which the order was executed in this country elicited much favorable comment on the Continent.

Although these locomotives have already been described in some detail in both the *Railway Age* and the *Railway Mechanical Engineer,* the impression has prevailed that they are of the so-called Pershing type. Further than that they are Consolidation locomotives this is not a fact. The locomotives were designed in the drafting rooms of the American Locomotive Company but conform generally to Belgian practice. Metric measurements were used in the design and the locomotives were built to metric dimensions. Left-hand drive and other features including copper fireboxes peculiar to European practice prevail in distinction to the Pershing locomotives in which American practice was adhered to in nearly every detail. The locomotives are equipped with the Belgian type of cab and tender. The latter is equipped with the Belgian State Railway's standard train connection of the screw link type with two spring buffers. The tender frame is made of steel plate and is supported on three pairs of wheels held in rigid alignment. The base of the tank is designed to drop down so as to occupy a part of the space between wheels, in this manner lowering its center of gravity.

Proposed Change in Law as to Railroad Purchases

WASHINGTON, D. C.

A BILL TO REPEAL Section 10 of the Clayton act, which restricts purchases by railroads from companies with which they have an interlocking relationship, and to provide a substitute for it as an addition to Section 20-a of the Interstate Commerce Act, has been introduced in Congress by Senator Frelinghuysen and Representative Esch, by request, for the purpose of providing more workable provisions than are afforded by Section 10, the effective date of which has been repeatedly postponed since the passage of the law in 1914. The proposed new provisions are:

13. After December 31, 1921, no common carrier engaged in commerce shall have any dealings in supplies, or other articles of commerce, or shall make any contracts for construction or maintenance of any kind, to the amount of more than $50,000 in any one transaction with another corporation, firm, partnership, or association, unless such corporation firm, partnership, or association be a common carrier, railroad company, terminal company, joint facility company, or public service company, when said common carrier shall have upon its board of directors, or as its president, general manager, or as its purchasing or selling officer or agent in the particular transaction, any person who is at the same time a director, general manager, or purchasing or selling officer of, or who has any substantial interest in such other corporation, firm, partnership, or association, unless and except such dealings or contracts shall be with the bidder whose bid is the most favorable to such common carrier to be ascertained by competitive bidding, under regulations to be prescribed by rule or otherwise, by the Interstate Commerce Commission. It shall be lawful for any common carrier or person when in doubt as to what constitutes a substantial interest within the meaning of this paragraph to apply to the Interstate Commerce Commission for a ruling in respect thereto, and in case of such application the Interstate Commerce Commission is required to pass upon the question and is authorized to finally decide the same.

No common carrier engaged in commerce shall, when it has upon its board of directors, or as its president or general manager, any person who is at the same time a director, president, or general manager of another common carrier corporation, charge such other common carrier corporation for supplies or other articles of commerce a price in excess of that at which similar articles are concurrently charged out by it for operating purposes with the addition thereto of proper transportation charges.

No bid shall be considered unless the names and addresses of the officers, directors, and general managers thereof, if the bidder be a corporation, or the members, if the bidder be a partnership or firm, be given with the bid.

Any person who shall, directly or indirectly, do or attempt to do anything to prevent anyone from bidding or who shall do any act to prevent free and fair competition among the bidders or those desiring to bid shall be punished as prescribed in this paragraph in the case of an officer or director.

This paragraph shall not apply where no competition is possible by reason of the fact that the article of the special type or character desired, or the desired supply, can be had only of a single maker or seller at the point required; nor shall it deprive a carrier of the right to exercise an honest business discretion in determining which bid, under all of the circumstances of the case, is, by reason of the responsibility of the bidder or otherwise, most favorable to its interest; nor to prevent it, after having taken competitive bids, from negotiating with one or more of the bidders, without further competitive bidding, to reduce the price or to secure more favorable terms or a more favorable contract, or from accepting a better offer so arrived at; nor from enlarging or reducing the quantity of the proposed purchase or work at a price arrived at by competitive bidding or otherwise as permitted in this paragraph.

This paragraph shall not apply to dealings between a common carrier and a non-carrier corporation or company, where such non-carrier corporation or company is controlled by it through stock ownership, lease, or otherwise, or in which it alone, or together with another or other common carriers, has a stock interest amounting to as much as one-half of the outstanding stock or between a common carrier and such non-carrier corporation or company controlled by common stock ownership, or between a common carrier holding company and its controlled non-carrier corporations or companies. Such a common carrier is prohibited from purchasing supplies or other articles of commerce from any such non-carrier corporation or company, without the assent and approval of a different price by the Interstate Commerce Commission, at a price exceeding the then market value thereof, at the time and place of delivery.

Every such common carrier having any such dealings or making any such contracts required hereby to be made by competitive bidding, shall, for such time as the Interstate Commerce Commission shall require, preserve in its office, subject to the inspection of the Interstate Commerce Commission, a full and detailed record of the transaction, showing the manner of competitive bidding, who were the bidders, and the names and addresses of the directors and officers of the corporations and the members of the firm or partnership bidding; and whenever the said commission shall, after investigation or hearing, have reason to believe that the law has been violated in and about the said dealings or transactions, it is authorized to refer the matter and its own views or findings thereon to the Attorney General.

If any common carrier shall violate this paragraph, it shall be fined not exceeding $25,000; and every such director, agent, general manager, or officer thereof, who shall vote for or direct the act, knowing that it constitutes such violation, or who shall have knowingly aided or abetted in such violation, shall be deemed guilty of a misdemeanor, and shall be fined not exceeding $5,000, or confined in jail not exceeding one year, or both, in the discretion of the court.

Sec. 2. That section 10 of an Act entitled An Act to supplement existing laws against unlawful restraints and monopolies, and for other purposes, approved October 15, 1914, is hereby repealed.

Sec. 3. That this Act shall be enforced from its passage.

The bill to postpone for another year the effective date of Section 10 of the Clayton law, which, under the present law, would go into effect on January 1, was favorably reported by the House committee on interstate and foreign commerce on December 15, after a hearing at which Alfred P. Thom, general counsel for the Association of Railway Executives, pointed out the serious effect it would have on the purchase of supplies by railroads, and asked that it be postponed until Congress could consider an amendment to the law which would accomplish the purpose desired. The Senate committee had already reported an identical bill.

Mr. Thom said he had drafted the bill introduced by Senator Frelinghuysen and Representative Esch by request, and that the railroads have been trying for five years to get Congress to consider the subject on its merits, but other pressing matters had prevented any action except repeated postponement of the effective date of Section 10.

Section 10 requires that transactions involving the purchase of supplies or the sale of securities amounting to $50,000 in a year between railroads and companies, etc., in which there is an interlocking relation of officers or directors shall be on competitive bidding.

Mr. Thom said that competitive bidding represents a most costly way of buying because of the possibility of combinations among sellers and because the lowest priced article is frequently not satisfactory. Governments, he said, usually buy on competitive bids and pay more than business concerns would. The provisions of the law would commit the railroads to making practically all of their purchases on competitive bids because they would not know, when making a small purchase early in the year, whether later purchases from the same seller would not amount to $50,000 in a year. It is also practically impossible for a company to know whether any of its officers or directors has a "substantial" interest in a company whose stock may be purchased in the open market. The law would require competitive bids even on patented articles or articles manufactured by secret process which could be bought only from one seller, or on purchases where there is but one seller at the place of delivery.

If the system required by the law were adopted, Mr. Thom said, there would be developed an army of adventurers who would seek to put in the lowest bid and to sell their contract.

Report of the Bureau of Locomotive Inspection

Application of Water Columns and Other Devices Advocated—Increase of Accidents for Fiscal Year 1919

THE OUTSTANDING FEATURE of the report of the chief inspector of locomotives to the Interstate Commerce Commission for the fiscal year ending June 30, 1920, is the increase in the number of accidents and casualties resulting from failures of parts of locomotives and tenders. Although the percentage of locomotives inspected which were found defective decreased from 58 per cent in 1919 to 52 per cent in 1920, the number of accidents increased 49 per cent, the number killed 15 per cent and the number injured 41 per cent. A summary of the chief inspector's report is given below.

The succeeding tables and charts have been arranged so as to permit comparison with previous reports, as far as consistent, and show in concrete form the number of locomotives inspected, the number and percentage of those inspected found defective, and the number ordered out of service because of not meeting the requirements of the law, together with the total number of defects found. They also show the total number of accidents caused by failure from any cause of the locomotive or tender, including the boiler, and all parts and appurtenances thereof, reported by the carriers, or discovered by inspectors, together with the number of persons killed or injured due to such failure.

LOCOMOTIVES INSPECTED, NUMBER FOUND DEFECTIVE, PERCENTAGE INSPECTED FOUND DEFECTIVE, NUMBER ORDERED OUT OF SERVICE, AND TOTAL DEFECTS FOUND BY COMPARISON

	1920	1919	1918	1917
Number of locomotives inspected	49,471	59,772	41,611	47,542
Number found defective	25,529	34,557	22,196	25,909
Percentage found defective	52	58	53	54.5
Number ordered from service	3,774	4,433	2,125	3,294
Total defects found	95,066	135,300	78,277	84,883

NUMBER OF ACCIDENTS, NUMBER KILLED, AND NUMBER INJURED, REPORTED, AND INVESTIGATED, COVERING FAILURES OF ALL PARTS AND APPURTENANCES OF THE ENTIRE LOCOMOTIVE AND TENDER BY COMPARISON

	1920	1919	1918	1917
Number of accidents	843	565	641	616
Decrease from previous year	[1]49.2	11.8	[1]4.1	....
Number killed	66	57	46	62
Decrease from previous year	[1]15.8	[1]23.9	25.8	....
Number injured	916	647	756	721
Decrease from previous year	[1]41.6	14.4	[1]4.8	....

[1]Increase.

The following table shows the number of accidents, number of persons killed, and number injured, due to the failure of some part or appurtenance of the locomotive boiler only, which were reported by the carriers, with their percentage of decreases by comparison of the fiscal years ended June 30, 1912 and 1913, with the fiscal years ended June 30, 1919 and 1920:

	1920	1919	1913	1912
Number of accidents	439	341	820	856
Increase 1920 over 1919	28.8	....	....	....
Decrease 1920 from 1912	48.7	....	....	....
Number killed	48	45	36	91
Increase 1920 over 1919	6.7	....	....	....
Decrease 1920 from 1912	47.2	....	....	....
Number injured	503	413	911	1,005
Increase 1920 over 1919	21.8	....	....	....
Decrease 1920 from 1912	49.9	....	....	....

NUMBER OF DERAILMENTS DUE TO DEFECTS IN OR FAILURE OF PARTS OF THE LOCOMOTIVE OR TENDER, REPORTED TO AND INVESTIGATED BY THIS BUREAU, AND NUMBER OF PERSONS KILLED AND INJURED AS A RESULT, BY COMPARISON

	1920	1919	1918	1917
Number of derailments[1]	7	7	2	4
Number killed	7	6	..	1
Number injured	18	7	2	21

[1]Only derailments, reported as being caused by defects in or failure of parts of the locomotive or tender have been investigated by this bureau.

The following table shows the total number of persons killed and injured by failure of locomotives or tenders, or some part or appurtenance thereof, during the four years ended June 30, 1917-1920, classified according to occupations.

	1920		1919		1918		1917	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Members of the train crew:								
Engineers	16	272	14	194	11	245	16	230
Firemen	20	404	22	265	19	306	21	304
Brakemen	9	77	11	82	6	62	13	60
Conductors	2	19	2	16	..	21	3	14
Switchmen	4	19	1	7	2	..	..	8
Roundhouse and shop employees:								
Boiler makers	2	9	1	9	..	11	..	11
Machinists	1	20	..	5	..	11	..	8
Foremen	..	3	..	3	1	4	..	1
Inspectors	..	1	..	6	4	4	..	3
Watchmen	4	3	..	2	..	3	..	5
Boiler washers	..	13	..	7	1	4	..	7
Hostlers	..	13	..	6	..	8	..	6
Other roundhouse and shop employees	3	30	1	11	2	19	2	19
Other employees	4	26	3	23	..	26	5	22
Nonemployees	1	7	2	11	..	24	1	23
Total	66	916	57	647	45	756	62	721

A summary of all accidents and casualties occurring during the fiscal year ended June 30, 1920, as compared with the year ended June 30, 1919, covering the entire locomotive and tender and all of their parts and appurtenances, shows an increase of 49 per cent in the number of accidents, an increase of 16 per cent in the number killed, and an increase of 42 per cent in the number injured. This increase is due almost wholly to disregard for the requirements of the law and rules, as well as to safety of construction and operation. This is especially true with what are sometimes considered unimportant parts; for instance, 26 per cent of the increase in accidents and injuries was due to failure of grate shakers; 10 per cent was due to failure of reversing gear; and 10 per cent to failure of squirt hose.

A summary of all accidents and casualties caused by failure of the boiler and its appurtenances only, for the fiscal year ended June 30, 1912 (the first year of the existence of the law), as compared with the year ended June 30, 1920, shows a decrease of 47 per cent in the number of accidents, a decrease of 48 per cent in the number killed, and a decrease of 49 per cent in the number injured. These decreases are especially gratifying when considering the increased number of locomotives in service and the increased traffic being handled, together with the increased duties imposed on the inspectors by the amendment to the boiler-inspection law, which extended their duties to the entire locomotive and tender and the parts and appurtenances thereof, which has added greatly to their work. These decreases demonstrate the wisdom of complying with the requirements of the law and rules, and the wisdom and foresight of its advocates when requesting its enactment.

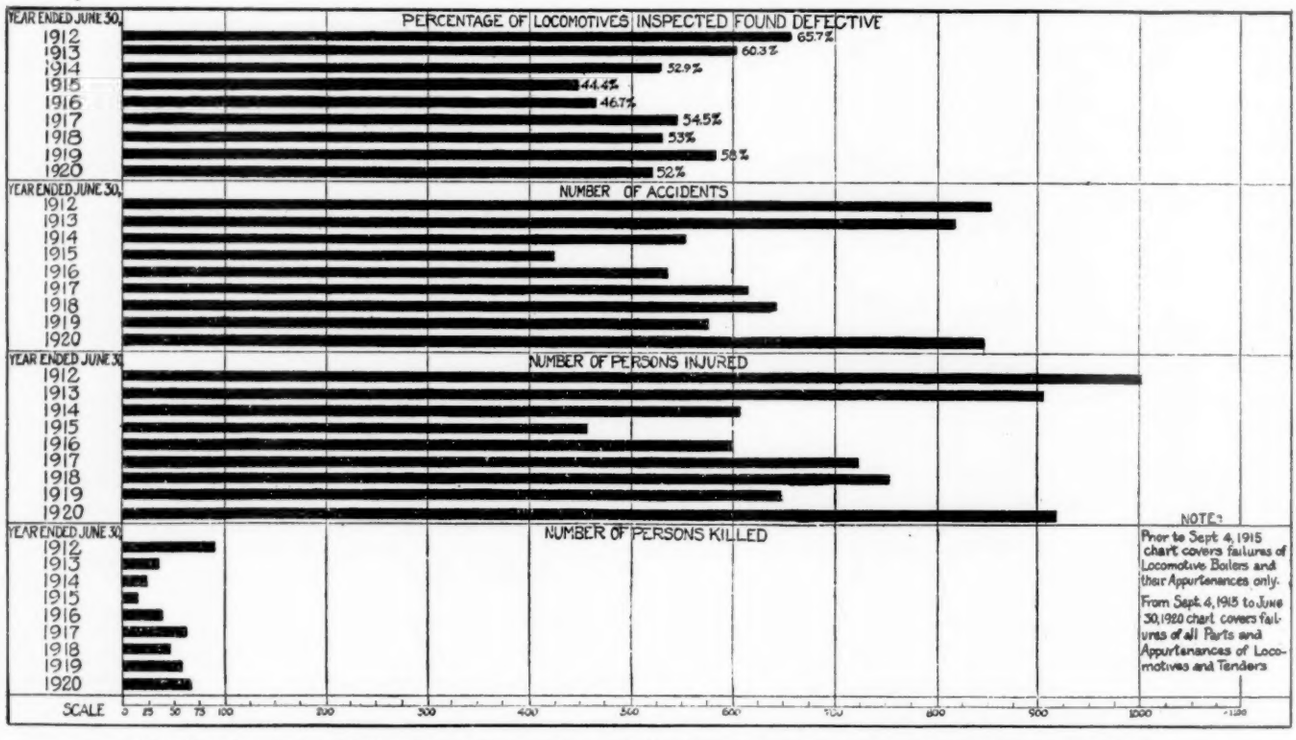
As shown by the table, derailments due to defects in or failure of parts of the locomotive or tender have been the direct cause of a number of most serious accidents and the loss of life and limb as well as damaged property and have forcibly demonstrated the necessity for proper inspection and repair of the running gear, driving gear, and brake rigging.

During the year the inspectors of this bureau were called upon by the commission to perform various duties not in connection with their regular work, which materially reduced the number of locomotives shown inspected by them, as well as the number ordered out of service, and it appears that certain railroad officials and employees have taken advantage of their temporary absence and permitted locomotives to remain in service with serious defects, which would have

been known to them had proper inspections been made and reports rendered as required.

It was found necessary to ask the courts to inflict the penalty provided in section 9 of the law, because of the defective condition in which locomotives were being operated by one carrier and its willful violation of the requirements of the law and rules. This case is now pending and is set for the October term of the court. It is evident that unless an immediate improvement is made by certain other carriers it will be necessary to file similar suits in the near future. That the law places the burden of proper inspection and repair and compliance with the rules of inspection on the carriers owning or operating the locomotives seems to have been lost sight of, and this is reflected in the increased number of accidents and casualties during the year.

Referring to failures of seams in boilers welded by the autogenous process, the recommendation made in the last annual report that such methods should not be applied to any part of the boiler where the strain is not carried by other


YEAR ENDED JUNE 30,
PERCENTAGE OF LOCOMOTIVES INSPECTED FOUND DEFECTIVE
1912 65.7%
1913 60.3%
1914 52.9%
1915 44.4%
1916 46.7%
1917 54.5%
1918 53%
1919 58%
1920 52%
NUMBER OF ACCIDENTS
NUMBER OF PERSONS INJURED
NUMBER OF PERSONS KILLED
NOTE:
Prior to Sept. 4, 1915 chart covers failures of Locomotive Boilers and their Appurtenances only.
From Sept. 4, 1915 to June 30, 1920 chart covers failures of all Parts and Appurtenances of Locomotives and Tenders
SCALE
0 25 50 75 100 200 300 400 500 600 700 800 900 1000 1120

Graphic Summary of Results of Inspection and Accidents Due to Locomotive Failures, 1912-1920

construction nor in the low water zone of the firebox, is repeated, with the further recommendation that this should apply to all parts of the locomotive and tender subject to severe stresses and shocks where failures might cause accidents.

During the year, 258 applications were filed for extension of time for the removal of flues, as provided in rule 10. Investigation showed that in 31 of these cases, the condition of the locomotives was such that no extension could properly be granted. Twenty-five were in such condition that the full extension requested could not be granted, but an extension for a shorter period within the limits of safety was allowed. Ten extensions were granted after defects disclosed by our investigation had been repaired. Thirty-seven applications were withdrawn for various reasons and the remaining 155 were granted for the full period requested.

During the year, close attention was given to the equipping of locomotives with headlights that would meet the requirements of the commission's orders of December 26, 1916, and December 17, 1917, and reports indicate that on July 1 (the date fixed for full compliance with the requirements) practically all locomotives in service were equipped in accordance therewith. These lights are meeting with the hearty approval of employees and so far as we are able to learn, of the officials in charge, where the locomotives are in operation. The general expression is that "They add greatly to the safety, comfort, and economy of operation."

No formal appeal has been taken from the decision of any inspector, during the fiscal year, which again demonstrates the good judgment which characterizes their work.

A large part of the report is devoted to an account of the tests of water indicating devices conducted by the bureau which were described in the *Railway Age* of August 27.

The chief inspector calls attention to the fact that services of the inspectors were required in making various investigations during the year and, in view of this, recommends that the act of February 17, 1911, be amended so as to provide for additional inspectors, to be appointed by the commission, upon the recommendation of the chief inspector, as the needs of the service develop. Other recommendations that are repeated are as follows:

That all locomotives not using oil for fuel have a mechanically operated fire door, so constructed that it may be operated by pressure of the foot on a pedal or other suitable device, located on the floor of the cab or tender, at a proper distance from the fire door, so that it may be conveniently operated by the person firing the locomotive.

That all locomotives be provided with a bell so arranged and maintained that it may be operated from the engineer's cab by hand and by power.

That cabs of all locomotives not equipped with front doors or windows of such size as to permit of easy exit, have a suitable stirrup or other step, and a horizontal handhold on each side, approximately the full length of the cab, which will enable the enginemen to go from the cab to the running board in front of it; handholds and steps or stirrups to be securely fastened with bolts or rivets; the distance between the step and handhold to be not less than 60 in. nor more than 72 in.

That all locomotives where there is a different indication between the gage cock and water glass of two or more inches of the water level under any conditions of service be equipped with a suitable water column to which shall be attached three gage cocks and one water glass with not less than 6 in., preferably 8 in., clear reading, and one additional water glass with not less than 6 in., preferably 8 in., clear reading, located on the left side or back head of the boiler. The water glasses to be so located, constructed, and maintained that they will register the approximate general water level in the boiler under all conditions of service and show a corresponding level within 1 inch and be so located, constructed, and maintained that the engineer and fireman may under all conditions of service have an easy and clear view of the water in the glass from their respective and proper positions in the cab. The gage cocks to be so located that they will be in easy reach of the engineer from his proper position in the cab while running the locomotive, extension handles to be applied if necessary to accomplish this.

The usual chart showing the number of accidents occurring during the fiscal year from 1912 to 1920 due to failure of various parts of a locomotive, is shown, and this information is also given in tabular form. Another section of the report lists the accidents occurring on each railroad under the jurisdiction of the bureau, with a summary in tables which show also the number of locomotives inspected and the numbers found defective and ordered from service. A supplement at the conclusion of the report shows typical examples of defective conditions and accidents resulting from defects with a short account of the causes of the failure.

Hearings on Burlington Capitalization Concluded

WASHINGTON, D. C.

FINAL HEARINGS on the application of the Chicago, Burlington & Quincy for authority to capitalize a part of its surplus by issuing $60,000,000 additional stock and $109,000,000 of bonds were held before Director W. A. Colston of the Bureau of Finance of the Interstate Commerce Commission at Washington, December 14 and 15. The issues were opposed by J. E. Benton, solicitor for the National Association of Railway and Utilities Commissioners, and the Nebraska railroad commission, and the stock issue was indirectly opposed by the Illinois state authorities, although they did not make a formal protest. The $60,000,000 stock issue is to be distributed as a stock dividend and $80,000,000 of the bonds, according to the company's plans, are to be sold and the proceeds used for a cash dividend which will enable the Great Northern and Northern Pacific, which own most of the Burlington stock, to retire a part of the joint 4 per cent bonds issued against the Burlington stock as collateral, which fall due next year. The Burlington dividends would then pay the interest on an issue of bonds to refund the balance of $135,000,000 to $140,000,000 of the issue at a higher rate of interest. Application on the part of the Great Northern and Northern Pacific for authority to issue the refunding bonds is expected to be filed with the commission as soon as it passes on the Burlington issue.

The Nebraska commission filed a protest against the increase in capitalization on the ground that there should be no increase in securities until the commission has completed its valuation of the company's property to show the amount of depreciation, and that the surplus should be treated as a trust fund to cover depreciation and to insure constant dividends in lean years.

No evidence was introduced on behalf of the Nebraska commission, but Hale Holden, president of the Burlington, was cross-examined by Commissioner Thomas L. Hall and Hugh LaMaster, counsel of the Nebraska commission, Morton T. Culver, special assistant to the attorney general of Illinois, and Mr. Benton. Mr. Culver also read into the record the Illinois law prohibiting stock dividends or any increase in capital stock except upon 60 days' notice to the state authorities.

Most of the cross-examination revolved around the question as to whether the surplus of which the company now proposes to capitalize a part represents the result of excessive rates and what the state representatives chose to refer to as a trust fund in favor of the public. Mr. Holden declared that it is a trust fund belonging to the stockholders as representing what the company by good management has been able to save under rates established under public regulation.

When Mr. LaMaster asked if the Burlington had not asked the Interstate Commerce Commission for higher rates on the ground that the rates were too low and that railroads should be allowed to accumulate a surplus for a reserve, Mr. Holden replied that it had participated with other roads in applications for a rate increase on the ground that the general level of rates was too low in relation to increasing expenses, and that the roads had argued for the right to accumulate a reasonable surplus for a reserve, but he pointed out that the Burlington's position is unique. He also said that even the Burlington has not earned as much as the 6 per cent permitted by the transportation act on the amount of its property investment and that half of what it did earn had gone back into the property while the stockholders had received only the other half. Now that the property has been brought to a condition of efficiency and established earning power the stockholders are entitled to some reward for their patience. The company had never asked for rates which would produce more than a fair return and it should be able to accumulate a reasonable surplus out of a fair return. The stockholders had urged before the war that they should receive a larger return on their investment.

Commissioner Hall, of Nebraska, took the position that the people of Nebraska have furnished the traffic and paid rates to enable the Burlington to pay all its expenses and pile up a big surplus and that it should, therefore, be regarded as a trust fund. He also said that what the investors put in the property was no more than the par value of the shares. Mr. Holden said that some of them had paid $200 a share and that they had not received 6 per cent on that amount. Railroads, he said, cannot continue to serve the public unless some consideration is given to the rights of the stockholders.

Mr. Benton asked if the proposed issue had not been considered in reference to its effect on a possible consolidation. Mr. Holden said that it had but that he had no consolidation in mind.

O. M. Spencer, general solicitor of the Burlington, asked Commissioner Hall what he would consider a fair return on a railroad investment in Nebraska. Mr. Hall said it should be a composite of the rates as fixed by the money markets of the world on bonds, preferred stock and common stock, but he finally suggested 5½ per cent as fair. In argument Mr. Spencer declared that the present stockholders of the Burlington had received since 1901, only 3.9 per cent on their investment, which he argued indicated that the surplus did not represent excessive rates. Mr. Spencer said the Burlington occupies a peculiar, unique position among railroads and that while it has usually paid an 8 per cent dividend, the amount of stock on which it has paid has been very small in proportion to that of other large roads in its territory. The road has been built up since 1901, he said, by the stockholders receiving less than they were entitled to.

C. W. Bunn, general counsel of the Northern Pacific, said that as a dividend the stock issue would put no money in the pockets of the stockholders, but that the issue was only part of a wise financial scheme to afford the proper relation

between stock and bonds, as a necessary foundation for the mortgage.

Arguments were also presented by E. C. Lindley, general counsel of the Great Northern, in support of the application, and by Mr. Culver, Mr. LaMaster and Mr. Benton against the application.

The purposes for which the Great Northern and Northern Pacific expect to use the dividends to be paid from the sale of the Burlington bond issue was explained at a previous hearing by Howard Elliott, chairman of the Northern Pacific, which he said owns 538,563½ shares of the stock of the Burlington. On July 1, 1921, he said, the bonds issued jointly and severally by the Great Northern and Northern Pacific companies amounting to $215,227,000, commonly known as C. B. & Q. joint 4's, because they are secured by a deposit of the Burlington stock as collateral, will become due. These bonds were issued nearly 20 years ago to purchase 1,076,135 shares out of a total of 1,108,391 shares of the stock of the Burlington, which were bought at $200 a share. Very careful thought has been given to the matter of the best method of refunding or paying these bonds so as to preserve the credit of the three railroads interested. Under the plan proposed by the Burlington, the Great Northern and Northern Pacific as the recipients of a large proportion of the dividend money, would be able to and intend to use it to pay as much on the joint 4's as the amount of the dividend received, leaving from $135,000,000 to $140,000,000 to be handled by some other issue of bonds, either a joint collateral bond of the two Northern companies or by each company issuing its own obligation if that can be done, the question to be determined later by negotiations among the companies and in conference with the commission.

If the $80,000,000 of Burlington bonds can be put out at a cost of not over 6 per cent and the $135,000,000 or $140,000,000 of collateral trust bonds can be put out at 7 per cent, a considerable saving in interest could be effected, Mr. Elliott said. To renew the collateral trust bonds as a whole, at 8 per cent, would cost at least $17,218,160 per annum. The $80,000,000 of Burlington bonds at 6 per cent would cost $4,800,000 per annum. The $135,227,000 in collateral trust bonds at 7 per cent would cost $9,465,890. The sum of these two interest payments is $14,265,890, or an estimated annual saving of $2,952,270. If in the working out of the plan some form of obligation individual to the two northern roads can be used instead of a collateral bond, Mr. Elliott said, the arithmetic is even more favorable. The interest required to refund the joint bonds at 8 per cent would be $17,218,160 and if $70,000,000 Northern Pacific bonds can be issued at a possible 6½ per cent and $70,000,000 Great Northern at 6½ per cent, the total cost plus that of the Burlington issue would be $13,800,000 per annum or a difference of $3,418,160 as compared with refunding the joint issue at 8 per cent.

Mr. Elliott said that the stockholder has owned his stock for nearly 20 years, which was bought in good faith on the belief that it was worth the $200 a share paid, and time has proved this to be true. The stockholder has helped to create the value of the Burlington by advancing to the company year after year the very large sums of money which might have been paid out in dividends and this was done knowingly and willingly because there was complete confidence that at the proper time the stockholders would receive just treatment.

MOTOR TRANSPORTATION.—The Department of Agriculture reported that more than 49,000 farmers were using approximately 78,000 motor trucks in 1919. The stockyards of St. Joseph, Sioux City, Indianapolis and Omaha report enormous increases in receipts of live stock by truck. In all, 881,000 head of live stock, or 24 per cent of all live stock received, were delivered there by motor truck in 1919.

Tank Car Outlets and Other Projections

COLONEL B. W. DUNN, Chief Inspector of the Bureau of Explosives, having received many letters protesting against the recent prohibition of nipples or other attachments to bottom outlet valves of tank cars, has issued a statement calling attention to the dangers incident to the transportation of gasoline.

The tank car committee of the American Railway Association, finds the tank car and the locomotive tender, of all railroad equipment, the most liable to derailment; and in the case of the tank car, the breakage of the outlet chamber almost invariably follows the derailment and adds greatly to the danger of further damage.

The bottom outlets of tank cars have always given more trouble in connection with leakages and fires than any other cause. It is contrary to elementary principles of safety to make a hole in the bottom of a tank containing thousands of gallons of a dangerous inflammable liquid, and depend upon any device to keep it closed. On English railroads a bottom valve is not allowed in any "tank waggon" carrying inflammable liquids of the first class. Furthermore, such liquids as gasoline are not transported in "tank waggons" of any type.

The Bureau of Explosives appreciates the difficulties. The desideratum is a car with valves which would not leak; but no valve has yet been placed in service which successfully accomplishes this result. The next best thing is to use a solid valve cap as a second defense against leakage at the bottom of the outlet chamber. If builders had made a serious effort years ago to make a really tight outlet, one might have been developed. It is hoped that some one of the experimental types now under service tests may prove satisfactory.

When extensions in the way of nipples and stop cocks are added to the outlet chamber the hazards are greatly increased. Valves extending below the bottom of the outlet chamber provide additional joints, each one of which is an additional possibility for leakage. These extensions are also liable to be struck and knocked off or ruptured by flying ballast or obstructions during transit. Consignees demanding these forget that the extensions increase the hazards while the car is moving. Gasoline is the most dangerous commodity transported on American railroads. The Bureau of Explosives' records show that from 1910 to the beginning of the present year, gasoline was responsible for 83 per cent of the deaths, 63 per cent of the personal injuries and over 49 per cent of the property damage occurring in the transportation of all classes of dangerous articles, exclusive of explosives. In the majority of the gasoline losses the bottom outlets started the trouble. So long as the railroads put up with this situation, just so long will improvement of the bottom outlet arrangement be delayed.

The action taken at the meeting of the tank car committee of the American Railway Association on June 4, 1920, against supplementary extensions, is believed to be a step in the right direction. It amended Section 7 of the Tank Car Specifications by adding sub-paragraph "c" providing that "No nipples, valves or other attachments, shall project below the bottom outlet cap except while car is being unloaded." This decision of the tank car committee was based principally upon the records of results in a large number of cases where this type of car was involved. The Bureau of Explosives heartily concurs in the action of the committee.

FROM THE POST OFFICE SERVICE down to the smallest village lighting plant, we doubt if there is a publicly owned and managed activity in this country that is being operated as efficiently and as economically as it would be under private operation.—*The Valve World.*

Annual Report of Interstate Commerce Commission

Review of Year's Activities Under New Law, With References to Work of the Several Bureaus

THE ANNUAL REPORT of the Interstate Commerce Commission for the year ending October 31 was made public on December 9. The first part of the report was abstracted in the *Railway Age* of December 10, pages 1019 and following, and the remainder is given below. The part of the abstract given in last week's issue dealt with the exercise of the commission's emergency powers, including the work of the Bureau of Service. It also gave the details concerning the Bureau of Finance and the Bureau of Accounts. In the part of the report abstracted below are shown the details as to the following bureaus: Statistics; Traffic; Law; Inquiry; Valuation, etc., with references also to the other work done by the commission and not already covered in the report. There are also references to the Bureau of Locomotive Inspection, but the detailed report of the chief inspector of that Bureau will be found in this issue on page 1071. The detailed report of the Bureau of Safety, which is also published separately from the Commission's general report will be abstracted in next week's issue.

Abstract of the Report

Bureau of Statistics

The principal extension of the work of this bureau during the past year has been the addition of monthly reports of operating statistics, such as those relating to train-miles, car-miles, ton-miles, and other units of physical operation. Such data were in prior years required only annually. The director general of railroads found it necessary to institute a system of monthly operating statistics for the purpose of supervising railroad operations effectively. In addition to our former annual requirements, certain new records were added, such as those pertaining to train-hours, locomotive-hours, gross ton-miles, rating ton-miles, and the direction of movement. By order of December 1, 1919, we required carriers to continue all of the basic records relating to operating statistics inaugurated by the director general. The order further required certain of these data to be reported monthly.

Progress has been made in the matter of commodity statistics. By order of December 1, 1919, we adopted a classification of commodities comprising 70 classes, in place of the 38 classes formerly in use. For each of the 70 classes the tonnage carried and the number of carloads handled are reported quarterly. The reporting of the number of carloads in addition to the tonnage heretofore required has the advantage of enabling one to compute the average load per car of each of the commodity classes. As a test of the usefulness of the more elaborate scheme of commodity statistics discussed in our last report, we also required as a special study a report for the month of April, 1920, showing, for 15 selected classes of commodities, the tonnage, the revenue, the number of carloads, and the states of origin and destination as shown by the waybill. The value of this test is diminished by the fact that the strike of switchmen occurred in April, 1920.

Steps have also been taken to expand considerably the statistics relating to railroad employees. The classification of employees now in force is not sufficiently detailed to meet the needs of those engaged in the adjustment of wages. A revised classification has been submitted to the United States Railroad Labor Board, to the carriers, and to the labor organizations for consideration. Pending the revision of the schedules now in use we are receiving quarterly reports on the same form heretofore used annually, as the annual reports are necessarily much delayed. An annual statement of the number of women employed by railroads in various occupations has also been added to the statistical compilations of the bureau.

On June 15, 1915, we entered an order prescribing rules governing the separation of operating expenses between freight and passenger services. That order was modified on October 23, 1917, relieving the carriers from the requirement of making the apportionments in order to reduce as much as possible the statistical work during the war. Effective January 1, 1920, these rules have again been amended so as to provide for an accounting subdivision of each railway operating expense account between freight service and passenger and allied services. The bureau has under consideration a further separation of operating expenses as between terminal and line or road services.

From the table showing monthly financial results for large steam roads the decline in the net railway operating income since 1917 clearly appears. In making a computation of the amount necessary to make good the guaranty for the six months ended August 31, 1920, it is necessary to consider that 35 of the carriers making monthly reports did not accept the provisions of section 209, transportation act, 1920; that war taxes are included among the deductions from revenue in 1920; that we may find that heavier maintenance charges have been included in the accounts than can be allowed in computing the income for the guaranty period; and that many other adjustments will have to be made in the returns both for the test period and the guaranty period. For the large roads accepting the guaranty provisions, the reports now rendered indicate that the amount required to make good the guaranty for the six months is approximately $600,000,000, after deducting war taxes, which are borne by the corporations. To what extent the maintenance, limitation, and other adjustments will modify this loss to the government we are unable to say at this time.

In connection with the tables of accident statistics, it may be observed that of the 6,495 persons killed in train and trainservice accidents in the calendar year 1919, 1,784, or over 27 per cent, were killed in highway grade crossing accidents.

Bureau of Traffic

In the rearrangement of our forces to meet the increased duties laid upon us by the transportation act and contemporaneous legislation, the bureau of traffic was organized. In this bureau we have consolidated the several boards, sections, and divisions which have heretofore dealt with the publication and filing of tariffs; the suspension of rates pending investigation; applications for relief from the provisions of section 4 of the act; the classification of freight; express charges; and practically all matters affecting charges for transportation other than proceedings on our formal docket, and complaints of an informal character handled by our bureau of informal cases.

The bureau is headed by a director of traffic with subordinate jurisdiction over matters pertaining to traffic. In addition to the special work of the various units of the bureau outlined below, its activities are directed toward the adjustment by informal conferences and correspondence of controversies arising between shippers and carriers, and the settlement of differences between carriers concerning divisions of joint rates, designed to promote harmony between the carriers and the public, facilitate the disposition of urgent matters, and lessen the number of matters eventually brought before us upon formal complaint.

Notwithstanding our efforts to promote simplicity of tariff publication, questions constantly arise concerning the interpretation and application of tariff rates and rules governing charges for transportation which require investigation and informal rulings, without prejudice to any formal proceedings that may be thereafter instituted.

Pursuant to plans for promoting harmony, carriers have since their return to private control continued in a modified form a system inaugurated by the director general of issuing to the public announcements of proposed rate changes and conducting public conferences at which interested parties are afforded an opportunity of presenting facts with respect to such proposed changes before they are made effective.

We believe that this system will materially assist in maintaining a spirit of cooperation between the shipping public and the carriers and will tend to lessen the number of disputed matters eventually brought before us for disposition in a formal way.

Tariffs

The number of tariff publications filed, containing changes in freight, express, and pipe-line rates, passenger fares, and classification ratings was 135,426. The increase in the number of rate changes established during this period, as compared

with the previous year, was due to the general increases in rates, fares, and charges authorized by us following the passage of the transportation act, 1920, and the many changes made immediately prior to the termination of federal control.

Rate memoranda have been supplied in 5,146 cases for our use and for shippers, carriers, and other departments of the government. These memoranda are in addition to the large number of informal rate quotations and verifications made daily. Shippers, carriers and departments of the government in increasing numbers have made use of the schedules maintained for the use of the public.

The Fourth Section

The fourth section of the act has been changed in important particulars by the transportation act, 1920.

Prior to this we were empowered, upon application by a common carrier, and after investigation, to authorize it, in special cases "to charge less for longer than for shorter distances for the transportation of passengers and property," and were also empowered "from time to time to prescribe the extent to which such designated common carrier may be relieved from the operation of this section."

In administering this section we proceeded upon the theory that the Congress intended that we should in proper cases exercise the power to grant relief, observing the rules laid down in the other sections of the act, and that it was appropriate to grant relief when, in our opinion, the resulting rates or fares would not be unjust or unreasonable in violation of the first section or unduly prejudicial in violation of the third section.

I should be stated, however, that as these powers [referring to a quotation from the new law] have been exercised for several years, these limitations will have little effect upon the actual administration of this section, for the reason that it has not been our practice to grant relief in order to permit carriers to charge a lower rate at a more distant point than at intermediate points unless the lower rate was reasonably compensatory; and for several years we have made it a rule of almost universal application not to grant relief on the ground of circuity of route that would permit carriers to charge at intermediate points—as to which the haul was not longer than that of the direct line or route between competitive points—any rates exceeding those between the competitive points. We have also refused for several years to grant relief because of potential water competition.

In our thirty-third annual report we referred to the fact that the director general of railroads had in important cases declined to defend carriers' applications for relief under the fourth section and had requested relief in but few instances. The result was that the number of applications for such relief had been greatly reduced, and most of those filed were made by or on behalf of carriers not under federal control. Since the return on March 1 last of the transportation systems to corporate control and the renewal of more active competition between individual carriers there has been a great and growing increase in the number of these applications.

Bureau of Law

On October 31, 1919, there were 14 cases involving our orders or requirements pending in the courts, of which 4 have been concluded. During the year 4 cases were instituted, so there are now pending in the different courts 14 cases. Of these 1 is in the Supreme Court, 10 are in the district courts, and 3 are in the Supreme Court of the District of Columbia. Of the 4 cases finally disposed of during the year 2 were dismissed on motion of the parties, 1 was dropped from the docket, and one of the two cases decided by the Supreme Court was dismissed in accordance with that court's order.

Bureau of Inquiry

Twenty-five indictments were returned for violations of the act to regulate commerce and related acts, and 50 cases were concluded.

During the period there was a demand for transportation which taxed the facilities of the carriers. These conditions tended to bring about new abuses and irregularities. A practice has grown up on the part of some shippers of bribing operating employees of railroad companies in order to obtain service. This practice is discussed elsewhere and recommendation made that legislation be enacted to reach the evil.

Reference has been made in previous reports to the prosecution of certain lumber dealers for securing service discriminations in violation of the Elkins act by consigning shipments, which were not intended for government use, to officers of the Army and Navy and thus obtaining transportation in the face of embargoes. Investigations now under way indicate that a somewhat similar practice has been resorted to by certain coal dealers who have misused our service orders, which granted preferences and priorities in connection with the transportation of coal for use by public utilities, and thus obtained preferences and priorities in connection with the transportation of coal which was not used or intended for use by public utilities. Such violations of the law as may be disclosed by the investigations will be referred to the Department of Justice for appropriate action.

The increased rates now in force seem to have increased the efforts of dishonest shippers to reduce transportation charges by falsely describing their shipments and by filing fraudulent loss and damage claims.

Bureau of Service

We have dealt elsewhere in this report with the transportation and operating conditions as they existed in the past and have outlined the steps taken by us and by the carriers to meet those conditions. The orders were issued by us under our powers to take care of particular emergencies. The acute stage of emergency has now passed and the movement of all traffic may be considered to be approaching a normal state. But in order to aid in preventing a recurrence of conditions such as existed in the recent past, we must keep in constant and close touch with operating and transportation conditions throughout the country.

This bureau was organized in April, 1920. Its activities have been directed chiefly to the execution of duties imposed upon us by paragraphs (10) and (17) of section 1 of the interstate commerce act. Special emphasis has been placed upon the present need for increased car mileage, heavier car loading, decreased percentage of bad-order cars, and the bureau is constantly directing its efforts toward the promotion of operating efficiency on all railroads subject to our jurisdiction. It keeps in close contact with the car service division of the American Railroad Association, acting on behalf of the carriers, and with the carriers themselves. Numerous informal complaints and inquiries have received attention, and, wherever possible, differences have been composed. The volume of complaints and inquiries is substantial. Numerous conferences have been held by the director and his assistants with shippers and carriers in the endeavor to correct erroneous practices, and effected a better understanding between the carriers in their relation to the public.

In order that we may be kept in close touch with the transportation problems as they arise from day to day, the Civil Service Commission has, at our request, held an examination to establish a register of eligibles from which we expect to appoint competent service agents. Each appointee will be assigned to a particular territory and will serve as chairman of a terminal committee created by us at important points and will have executive charge of the functioning of all such committees. He will be expected to have full knowledge of service conditions within his territory at all times and to keep us advised relative thereto and make recommendations as to the exercise of our mandatory powers, and, when so authorized, to give directions to carriers as to car service.

Bribery of Railroad Employees

As a result of the inadequacy of the car supply and of railroad transportation facilities generally during the past year, a practice has grown up among shippers of bribing operating employees of railroad companies in order to obtain transportation services. The demoralizing effects of this practice are far-reaching. Bribery of this character in many instances can not be directly and effectively reached under existing laws. It is, therefore, recommended that the interstate commerce act be amended to provide for the punishment of any person offering or giving to an employee of a carrier subject to the act any money or thing of value with intent to influence his action or decision with respect to car service as defined in the act, or because of such action or decision; and to provide also for the punishment of the guilty employee.

Bureau of Safety

A more detailed report of the work of the bureau of safety is published as a separate document.

During the year ended June 30, 1920, we investigated 90 train accidents, which included 58 collisions and 32 derailments. The collisions resulted in 179 deaths and 1,158 injuries, and the derailments resulted in 60 deaths and 481 injuries, a total of 239 persons killed and 1,639 persons injured.

Thirty-one of the collisions investigated occurred on lines operated by the block system; 20 occurred on lines operated by the time-table and train-order system, and 7 were yard accidents.

Of the 31 collisions investigated in block-signal territory, 20 occurred on lines equipped with automatic block signals, of which 14 were rear-end collisions, 5 were head-end collisions, and 1 was a side collision.

Of the 20 collisions occurring in automatic block-signal territory, 16 were due directly or indirectly to the failure of enginemen properly to observe and obey signal indications; 1 was caused by a despatcher authorizing a movement against the current of traffic without knowing whether opposing trains were being held

and by a yard clerk allowing an opposing train to proceed; 1 was due to a closed angle cock on the rear of the tender; 1 to the failure of a conductor to see that a sufficient number of hand brakes were set to hold the portion of his train left standing on a mountain grade; and 1 to the air brakes not being in proper working order, adequate inspection and test of them not having been made before leaving the terminal.

Of the 16 collisions investigated in automatic block-signal territory in which enginemen were involved either directly or indirectly, 10 were due to failure of enginemen to observe or obey stop signals, all of which might have been prevented by an adequate automatic train-control system. In four of the other cases the enginemen failed to operate their trains with proper caution after entering occupied blocks, in accordance with the rules; in one case the train should have been flagged through a block, and in the other instance the engineman at fault was operating his train against the current of traffic.

The 11 collisions in nonautomatic block-signal territory consisted of 6 rear-end and 5 head-end collisions. Five of these accidents were due to the failure of enginemen to operate their trains under proper control in occupied blocks. Enginemen were also primarily responsible in three other instances. One of these collisions was due to the failure of a flagman properly to protect his train, one to a train being authorized to proceed against the current of traffic without utilizing the safeguards provided by rule, and one to the failure of a despatcher to deliver to one of the trains an order which changed a meeting point, resulting in a lap order, the latter being a head-end collision, and the block system on this line applied only to trains being operated in the same direction.

The 20 collisions occurring on lines operated under the time-table and train-order system consisted of 6 rear-end collisions, 13 head-end collisions, and 1 side collision. Errors in handling or failure to obey train orders were responsible for 8 of the head-end collisions; train service employees were at fault for 7 of these collisions, while the other was due to the failure of an operator to deliver a train order to one of the trains, resulting in a lap order, and of the despatcher to observe a rule governing the issuance of meet orders.

Track conditions were involved in 15 of the 32 derailments. Four derailments were due to broken rails and four to open switches, three of which were opened with malicious intent. One derailment was due to a defective switch, one to insufficient ballast, one to excessive speed in view of existing superelevation, one either to an obstruction or excessive speed in view of existing superelevation, and three to a combination of track and equipment defects. Of the remaining 17 derailments, 8 were due to defects of equipment, 3 to obstructions, 2 to excessive speed, 1 to running off a derail, and 1 to the failure of an engineman to note an open drawbridge, while the causes of 2 derailments were not ascertained.

Bureau of Locomotive Inspection

The work of this bureau during the fiscal year ended June 30, 1920, is shown in detail in the report of the chief inspector, published separately.

The summary of all accidents and casualties occurring during the fiscal year ended June 30, 1920, covering failures of the entire locomotive and tender and all of their parts and appurtenances, as compared with the year ended June 30, 1919, shows an increase of 49 per cent in the number of accidents, an increase of 16 per cent in the number killed, and an increase of 42 per cent in the number injured. This increase is due almost wholly to disregard for the requirements of the law and rules, as well as of safety of construction and operation. This is especially true with respect to parts sometimes considered unimportant; for example, 26 per cent of the increase in accidents and injuries was due to failure of grate shakers; 10 per cent was due to failure of reversing gear; and 10 per cent to failure of squirt hose.

The summary of all accidents and casualties caused by failure of the boiler and its appurtenances only for the fiscal year ended June 30, 1912, the first year of the existence of the law, as compared with the year ended June 30, 1920, shows a decrease of 47 per cent in the number of accidents, a decrease of 48 per cent in the number killed, and a decrease of 49 per cent in the number injured.

Derailments due to defects in or failure of parts of the locomotive or tender, have been the direct cause of a number of most serious accidents and loss of life and limb, as well as damage to property, and have shown the necessity for proper inspection and repair of the running gear, driving gear, and brake rigging.

During the period of federal control the assistant director of operation, United States Railroad Administration, was furnished monthly with a statement showing in detail all defects which constituted violations of the law and rules, found on locomotives operating under the jurisdiction of the director general of railroads, and the locomotives ordered out of service as provided in the law. In addition to this, a number of special investigations were made at the request of the Railroad Administration and reports furnished covering conditions found and action taken. In this and in other ways we co-operated with the Railroad Administration during federal control to the fullest extent consistent with the purpose of the law. Reports showing defects found on all locomotives ordered out of service, and those found approaching violations of the law and rules, were furnished the chief operating officers of the carriers, so that they might be fully informed of the condition of their locomotives and in other ways we co-operated with the carriers in bringing about safe and proper conditions.

With the additional duties of the inspectors, and the increased number of locomotives in service, it is impossible with the present force of inspectors and under the salaries now provided adequately to accomplish the purpose for which the law was enacted.

Bureau of Valuation

The conditions of employment which were discussed in considerable detail in our thirty-third report to the Congress have grown worse rather than better during the past year. It has been found increasingly difficult to obtain and retain competent men and the compensation has been distinctly greater, the effect being to retard the progress and enhance the cost of our work.

The field work in the southern district has been entirely completed. In all other districts, except the eastern, it has been completed except for some odds and ends which will be cleared up by the end of the present calendar year. In the eastern district, owing to the much greater complexity of the properties involved, it has not been possible to make corresponding progress. About 1,000 miles of railroad remain to be inventoried and this will require, with the three parties now employed, until June 1, next.

While the progress of our office work has been impeded by the labor conditions above referred to, it has been on the whole fairly satisfactory. It is still hoped that by December 31, 1921, a report will have been completed by every section upon all the major rail systems; that is, systems including 500 miles and more of road. With these reports we will have before us the information from which to establish a value under the valuation act.

The act of March 1, 1913, requires us to report "the present cost of condemnation and damages, or of purchase, in excess of present value" of common carrier lands. This statute was enacted previous to the decision by the Supreme Court of the United States in the so-called Minnesota Rate Cases. We held upon the strength of that decision that it was impossible to report intelligently the fact called for, and that if reported it would be of no practical significance. Nothing was therefore done toward ascertaining or reporting this fact.

The Kansas City Southern Railway Company claimed this to be error and proceedings were brought to compel us to investigate and report as required by the statute. The Supreme Court of the United States sustained this contention in an opinion promulgated March 8, 1920.

The effect of that decision was to prevent the fixing of a final value upon any property, or the service of other tentative valuations, until this figure could be ascertained, and in view of that possibility we suspended the service of tentative valuations pending the decision of the Supreme Court. Before that fact could be reported as to any individual carrier certain basic studies had to be made and certain general information collected. That has been done.

Certification of the Standard Return

Since the approval of the federal control act we have certified in tentative form the average annual railway operating income of 585 carriers for the three years ended June 30, 1917, amounting in the aggregate to $945,279,920. However, the sum stated does not represent the exact standard return of the carriers taken under federal control, because it has been necessary to make corrections of these tentative certifications and because it may be determined that some of the carriers whose income was so certified were not taken under federal control.

Such tentative certifications are made from the reports of the carriers rendered to us. We have reviewed the accounts of 325 carriers. Of these we have found that 170 of the original or tentative certifications were correct and that the certifications for 155 carriers should be amended so that the amounts certified would reflect the income of those carriers, ascertained in the manner required by our accounting rules.

By corrected certifications we have reduced the standard returns of 94 carriers in amounts aggregating $2,412,631, which is equivalent to a reduction of 1.24 per cent of the amount originally certified. The individual decreases ranged from $21.51 to $434,671. We have increased the standard returns of 61 carriers in amounts aggregating $1,160,604, which is equivalent to an increase of 1.18 per cent of the amount originally certified. The individual

increases ranged from $32.55 to $403,061. The net reduction amounts to $1,252,027. This net reduction is 0.43 per cent of the aggregate of the 155 standard returns we have corrected and 0.37 per cent of the 325 standard returns, the underlying accounts of which we have reviewed.

Under the provisions of the federal control act our certification of the standard return is conclusive of the amount of the average annual railway operating income. By virtue of the tentative certifications and the right of correction reserved therein the carriers were enabled to enter into the standard form of contract with the director general of railroads. There are stipulations in the standard form of contract which provide for conforming the just compensation specified therein to the correct amounts that we may certify.

Boards of Referees

Under the provisions of section 3 of the federal control act and in response to petitions filed by railroad corporations, we have appointed 20 boards of referees, and one upon petition filed by the director general of railroads, to hear claims for just compensation not adjusted by agreement upon a contract such as is authorized by section one of the federal control act.

Reports have been made upon 10 of the claims. During the proceedings in two of the cases the director general of railroads and the claimant agreed upon the just compensation, and those two cases were dismissed. Under the provisions of sections 3 and 6 of the federal control act and in response to petitions filed by railroad corporations we have appointed 48 boards of referees to hear claims for losses by reason of additions, betterments, or road extensions made or constructed during federal control by the President or by carriers in response to orders of the President, the cost of which was charged to the investment accounts of the railroad corporations. Progress is being made in the settlement of many items in these claims, and in order that the parties may have full opportunity to reduce the number of matters to be submitted to the boards none of these cases thus far has been set for hearing.

These boards have been constituted from our membership and from that of our official force.

Transportation of Explosives and Other Dangerous Articles

The act of May 30, 1908, entitled "An act to promote the safe transportation in interstate commerce of explosives and other dangerous articles, and to provide penalties for its violation," required us to formulate regulations for the safe transportation of explosives, such regulations to be binding upon all common carriers engaged in interstate commerce which transport explosives by land.

The act does not specifically authorize us to prescribe regulations for the transportation of dangerous articles other than explosives. However, the necessity for such regulations for the proper safeguarding of such articles in the channels of commerce and in order to afford reasonable protection to the public became manifest. Therefore, believing that section 15 of the act to regulate commerce conferred upon us the power to prescribe for the carriers such regulations as were appropriate in the interest of reasonable safety precautions, we formulated and published such regulations, effective October 1, 1911, after public hearing and full consideration of the interests of shippers, carriers, and the general public. Our power to prescribe these regulations and their binding effect upon the carriers has not been challenged. They have been generally observed by shippers, but many accidents and substantial losses have been and are being caused by failure of a comparatively small number of shippers to meet the requirements of the rules.

During the past several years, and more especially during the period of the war, occasion has arisen for the transportation of additional and heretofore unknown dangerous articles. It is obvious that the importance of appropriate precautions to insure the safe transportation of explosives and other dangerous articles from the standpoint of the carrier and its employees, the shipper, the passenger, and the general public, can hardly be overestimated. Probably in no other field of human endeavor is the importance of reasonable safety measures so apparent and pronounced.

During the year 1907, which immediately preceded the enactment of the act to promote the safe transportation in interstate commerce of explosives and other dangerous articles, etc., 79 accidents in the transportation of explosives resulted in 52 deaths, 80 personal injuries and a total known property loss of nearly $500,000. During the year 1918 our military program required the production and transportation of more than 2,000,000,000 pounds of military explosives. In addition to this, the normal movement of explosives for commercial use amounted to about 600,000,000 pounds. It is deduced from careful estimates that at all times during the year 1918 there were on the tracks of railroads in the United States not less than 55,000 carloads of explosives of an average weight of 40,000 pounds each. Notwithstanding the tremendous increase in the volume of these explosives transported during that year, the casualties resulting therefrom were only two persons injured and the damage to property was about $33,000.

In the transportation of dangerous articles other than explosives, however, 1,204 accidents occurred during 1918, resulting in 17 persons killed, 86 persons injured, and a known property loss of approximately $1,300,000. The remarkable success in transporting explosives is attributed to the penal provisions of the act of March 4, 1909, and the enforcement thereunder of our regulations governing such transportation. It is generally admitted by railroad officials and shippers that in order to secure proper safeguarding of the public in the transportation of dangerous articles other than explosives as strict regulations are necessary under statutory authority as in the case of the transportation of explosives. Owing to the absence of any penalty in the law under which our dangerous-article rules are prescribed similar to that now embraced in the transportation of explosives act, the object of those regulations is rendered most difficult if not, in fact, impossible of accomplishment. We believe that the public interest clearly requires the enactment of appropriate legislation definitely directed to the transportation of dangerous articles. We also believe that the act of March 4, 1909, should be amended to include certain explosives not now definitely named in the act; that its provisions should be extended to water lines engaged in interstate commerce, and that our industrial needs point strongly to the necessity for a modification of the so-called 90-day clause of the present law under which changes in our regulations for the transportation of explosives can be made only upon 90 days' notice. We think that these objects and other necessary modifications and extensions of existing laws may be most readily accomplished by the enactment of a law corresponding in general to the provisions of H. R. 12161, introduced in the House of Representatives on January 30, 1920.

Rate Increase

In connection with the discussion of the general rate advance case, the report includes the following table showing the number of States that have allowed or have not allowed for interstate traffic the increases authorized by the Interstate Commerce Commission for interstate traffic:

	States
Freight traffic:	
Increases approved in full as per our report	24
Increases approved with exceptions	17
Smaller percentage increases than allowed by us approved by	5
All increase denied	2
Total	48
Passenger traffic:	
Increases approved in full	23
Increases approved with exceptions	7
No increase allowed because statutory provisions prevent action by state commissions	13
Increases denied	3
Increases denied in part	2
Total	48

Regarding the general rate advance the report said:

"The only basis of comparison available in determining the rates which should be established in compliance with section 15a of the act is to be found in the volume of traffic in the past, and estimates of the expenses, volume of traffic, and other relevant factors likely to exist in the near future. Necessarily, rates so established have an element of uncertainty because the costs, volume of traffic, and other factors to be encountered by the carriers are not ascertainable with exactness. It is, therefore, impossible to speak with confidence as to results until a reasonable period has elapsed."

Reorganization

The commission also explains the reorganization which it has made of its forces to meet the increase in its duties and additions to its membership.

"Our reorganization," the report says, "together with the expansion of our administrative forces, necessitated reclassification of the various activities of our bureaus and sections. We have reduced the number of bureaus by consolidation and rearrangement, so that each now has to do with a principal function of our work. In this organization of administrative forces the guiding principle is to keep the organization as simple as possible, with centralized responsibility, and to afford a ready means to bring to bear the judgment of the commission on any matter. Each bureau has a single head, who reports to a commissioner, who in turn can bring matters to a division, or, if need be, to the entire commission, for determination. The exception to this rule is the bureau of valuation, which reports directly to Division 1. The majority of matters are dealt with by a division. Minor administrative matters are disposed of by the commissioner in immediate charge of the particular bureau."

The Financial Position of the English Railways*

The Claims Against the State—Chief Points for Adjustment—The Future of the Railways

By W. M. Acworth

THE PREVAILING uncertainty as to the future position of British railways is reflected in the price of their stocks. This uncertainty, it is fair to say, is not confined to this country. The war has upset business all over the world, and the railways are no exception.

Ordinary business concerns can readjust themselves to the changed circumstances in such manner as their own uncontrolled judgment decides. But railway undertakings are at all times semi-public, and during the war they have been treated as wholly public. Not only have they to work out the complicated readjustments consequent on de-control, but the whole code of statutory, legal and executive obligations and restrictions to which they are subject has to be recast to meet the new conditions. All this is bound to take time, and in fairness this must be recognized. Still the public would perhaps be better pleased if there were more signs displayed on all sides of a desire to hasten the process.

A review of the financial situation falls under two main heads:—The settlement between the government and the companies in reference to the past; and the prospects for the future, after next August, when the railways revert to their owners, and once more earnings are received and expenditure incurred on behalf of the shareholders. The settlement between the government and the companies looked a simple matter when it was first arrived at by an interchange of short informal letters in August, 1914. It will not be so simple when seven years have elapsed; the documents to be submitted for investigation to Lord Colwyn's committee will form a substantial volume.

Statutory Right Waived

Under the terms of the Act of 1871, which authorized the government to take possession, the companies were entitled to "full compensation for any loss or injury they may have sustained," such compensation to be ascertained by agreement, or in default by arbitration. This statutory right the companies waived at the outset by agreeing, in the terms of their letter of August 6, 1914, that the compensation should be adjusted on the basis of—to put it broadly—a guarantee by the government to the companies of their pre-war net income during the period of control. This period was fixed by Mr. Runciman, then president of the Board of Trade, in September, 1916, as extending to "two years after the termination of the war"; which date was subsequently interpreted by the Ministry of Transport Act, 1919, to mean August 12, 1921. Seeing that the war is still not officially terminated, this has turned out to be somewhat of the nature of a prolepsis.

There have been many subsequent agreements, modifications, and interpretations of agreements. For one thing, there has been frequent need to divide what is technically known as "above-the-line" receipts and expenditure from those "below-the-line." It was only the former class, receipts and expenditure concerned directly or indirectly with operating the railways, that the government took over. The companies retained possession of all "below-the-line" properties and revenues; bookstalls, advertisements, land and houses not used for railway purposes, and so on; and in respect of these they have carried on business, on their own account, as before.

Arrears of Expenditure

Two sets of agreements only seem to be of sufficient general importance to merit notice. The first set refers to maintenance of the existing property, and the additions to it from time to time on capital account. Under the normal conditions of pre-war times the companies maintained or renewed their plant and equipment up to their current standard year by year out of annual revenue. Yet extensions and additions and improvements on capital account were always going on. At an early stage of the war new construction practically ceased; and as men and materials grew even scarcer, even renewals were abandoned, while finally even repairs, unless absolutely necessary to keep the machine going, were postponed.

The result was that revenue expenditure, for which the government was responsible, fell heavily into arrear. The government perforce agreed that the postponed expenditure must ultimately be met from public funds. The arrears are being caught up now. What proportion will have been carried out by next August as part of the current expenditure which the government is still meeting, and what proportion will be left over to be paid for in cash on the termination of control, and at what price the materials and labor involved shall be charged, are accounting questions intricate and difficult enough, and involving huge sums of money, but not apparently involving any question of principle. There is, however a question arising here which may fairly be called one of principle.

Every business man knows how difficult and often arbitrary is the apportionment of renewal expenses between revenue and capital. Under normal circumstances the shareholder pays in either case. But here, if the expenditure is held to be on revenue account, the government has to pay in full; if on capital account the government only pays interest on it during the period of control. For expenditure on what is admittedly capital account (such as that, for instance, invested in partially constructed lines) at an early stage in the war the government accepted liability to pay interest at the rate of 4 per cent per annum on it as and when brought into actual use. When after the armistice capital expenditure began again, the government practically agreed to pay interest at the rate of 5 per cent on the cost of work carried out, subject to ministerial approval as and from the date when the money was actually spent.

Extra Wear and Tear

Closely connected with the question of maintenance is that which is known as "extra wear and tear." The government auditors seem to assume that there will be eventual payment under this head, for which "a large allowance needs to be provided." "A calculation," they say—by whom made they do not state—"results in a figure of about £40,000,000" (about $160,000,000). But the roundness of the figure does not suggest any extreme accuracy of calculation, and apparently the government has not in any way admitted liability.

The claim which the companies will presumably make may perhaps be best explained by a simple example. The rate at which rails need renewal depends almost wholly under normal

*From the Times Trade Supplement, October 30, 1920.
Note—In converting from pounds sterling to dollars, a rate of $4 to the pound has been used. The normal rate of exchange is $4.86, whereas the present rate is approximately $3.50.

circumstances upon the amount of traffic passing over them. Company A before the war carried to a rail renewal fund each year such a sum as would replace its rails within 25 years, which had been ascertained by experience to be the fair period to allow. Suppose that its traffic during the war doubled, then eight years' life of the rails has been absorbed in four years. The company, if prudently managed, would surely have doubled its annual contribution to the renewal fund. If the government did not do so, it has under-maintained the property. But the government may reply: "Not so. You are asking something beyond your bargain. We undertook to guarantee your current dividends and to maintain your property. If rails fall for replacement earlier than usual because of extra traffic, so long as we are in control, we are bound to renew them. We accept no obligation for contribution to funds which on an actuarial basis may need enlargement to meet hypothetical pre-dated expenditure hereafter."

Further, they may well say, "A bargain to be fair must work both ways. If we are to pay 'for extra wear and tear,' on lines where the traffic increased, how are we to be compensated for the longer life of the rails on lines which owing to war exigencies were left half empty or even closed to traffic entirely?"

Value of Stores

The other agreement needing special mention is that relating to stores. Though the official returns do not give the value of the stocks carried by the railways as a whole, the amount must be very large. It stood in the books of the North-Western Railway on December 31, 1913, at over £2,000,000 ($8,000,000); so we may assume that it would be something like £20,000,000 ($80,000,000) for the whole country. These stocks were taken and used and replenished from time to time on government account. The government is now under obligation to restore to the companies at the end of the control period, either in specie or in their cash equivalent, at prices ruling in August, 1921, the stocks as they stood on August 5, 1914. The agreement is of course very advantageous for the companies. The North-Western, for instance, will, as against a liability of £2,000,000 ($8,000,000) for the cost of stores, have possession of a stock worth, say, £5,000,000 ($20,000,000). And the companies as a whole will have perhaps £30,000,000 ($120,000,000) to add to reserve—for one may presume it will be so treated—a very satisfactory addition indeed to an item in English railway balance-sheets which has hitherto been none too large.

Future of the Railways

As for the prospects of the future, he would be a bold man who would attempt to prophesy at the present moment. The government has announced its fixed policy to be that the railways shall be permitted to charge such rates as will with efficient and economical management secure to them what we may roughly call their pre-war net income. It is difficult enough to fix even on paper the right rates to secure this result; whether the facts correspond to the paper calculation depends on the volume of traffic. It is liable to sudden disturbances on both sides. Expenses may go up—they are doing so at the present moment; the sliding scale will give the workmen an extra 2s. (20 cents) a week, and 2s. a week for 600,000 workmen means £3,000,000 ($12,000,000). Receipts may go down, either because the increased rates check trade and travel or owing to a general depression in trade. Where they will fall to if there is a prolonged coal strike no one can say.

The increased freight rates which were sanctioned in July and came into force at the beginning of September were then calculated, not merely to meet current requirements, but to provide in the 11 months from September 1, 1920, to July 31, 1921, a surplus sufficient to wipe out a deficit which had accumulated in the five months April to August, 1920. The prospect was held out that from August next rates could be reduced by something like 10 per cent. The returns for September last are not yet published, but there seems reason to hope that they will meet expectations. For October and the subsequent months there can be no such hope. The outlook is gloomy. The coal strike has destroyed all possibility of rate reduction. If the shareholders' dividends are to be maintained beyond next August it will be necessary to rely not so much upon increased rates as upon economies in operation.

Unfortunately the returns which have been published every four weeks since the beginning of this year do not seem to show that much progress has been made in this direction at present. The load per car and per train, the work done by each engine for each hour that it is employed, the proportion of empty to loaded cars—none of these figures (and they are the true tests of operating efficiency) are satisfactory, and they show no improvement. The American railway companies by an organized and long continued campaign of publicity have succeeded in persuading their shippers that better loading, prompt release of cars, and the like, in which each trader can individually help, is in the best interest of the trading community at large. Nothing of this kind is being attempted here.

Further, a good many months have elapsed since the government publicly announced its policy to help the companies to do that which they have long vainly endeavored to do for themselves, that is, to combine the scattered resources of a large number of competing companies into a small number of efficient operating groups. That the potential economies of such a regrouping are very large no one can doubt. It must, of course, take years before the process can be fully worked out; but the economies can begin as each step in the process is taken. So far there are unfortunately no signs that the process is beginning. If the companies are holding out their right hand to grasp the hand which the government has extended to them, they have at least taken every precaution to prevent their left hand from knowing what their right hand is doing.

A BAND was recently incorporated at Hagerstown, Md., by employees of the Western Maryland.

Photo from Keystone View Co.

Passengers Riding on Car Tops on a Crowded Roumanian Railway

General News Department

Representative McLane has introduced in Congress a bill to empower the Interstate Commerce Commission to fix the price of coal and to regulate the coal business under such powers "as it now exercises over railroads."

Loans from the War Finance Corporation made to railroads have been reduced since November, 1919, from $70,558,210 to $52,828,270, of which $40,155,270 is payable on demand, the balance $12,672,940 maturing on January 1, 1921, and April 1, 1922.

Pensioners of the Canadian Pacific, who during the war have received 125 per cent of their regular or normal sums, have been advised that this increase, allowed because of the increase in the cost of living, will be continued through the year 1921.

The Railway Labor Board on December 16 began hearings on the controversy between the Norfolk & Western and its trainmen and conductors, according to a recent announcement made by Judge R. M. Barton, chairman of the Board. According to Judge Barton, the strike vote taken by these employees will be held in abeyance until the Board announces its findings in the case.

Advances to the railroads on account of their six months' guaranty for the period from March 1 to August 31 had been paid by the Treasury Department, up to November 13, to the amount of $250,485,374, on certificates by the Interstate Commerce Commission. The commission up to that time had isued certificates for $256,524,874. Up to November 9 certificates for loans from the revolving fund amounting to $102,812,785 had been received from the Interstate Commerce Commission, and on these $81,621,085 had been actually paid out.

Joseph Sweeney, of Philadelphia, Pa., a brakeman of the Baltimore & Ohio, is the recipient of a gold medal, presented by the railroad company, in recognition of his noble action in giving his blood in a transfusion operation in an effort to save the life of Thomas J. Thornton, a fellow employee. Thornton had both legs crushed and was taken to the Polyclinic Hospital by Sweeney and others. The attempt to save the injured man failed and Sweeney asked that his part be kept secret, but the facts leaked out. The presentation was made by Vice-president C. W. Galloway, in the presence of General Manager S. Ennes, General Superintendent E. W. Scheer, Superintendent R. B White, C. C. F. Bent and other officers. One side of the medal shows an angel hovering over the prostrate form of a man on the railroad tracks.

Tentative Consolidation Plan Under Way

Prof. W. Z. Ripley, who has been engaged by the Interstate Commerce Commission to prepare a tentative plan for the consolidation of the railroads of the United States into a limited number of systems, is expected to submit his report to the commission about January 1.

Mexican National to Come Under Per Diem Rules

That cars will be allowed to enter Mexico under the A. R. A. per diem rules is expected at an early date as the result of negotiations completed by the American Railway Association acting in behalf of 90 American roads, and F. P. De Hayos, representing the National Railways of Mexico. The agreement was drawn in New York and sent to the director general of the National Railways by special messenger. As soon as he agrees to it and executes his part of the agreement, his company will again be entrusted with American cars without depositing a bond. Under the terms of the agreement the National will pay $400,000 to the 90 railways for which the A. R. A. is acting. This sum will be in settlement of claims arising from the loss of 409 cars delivered to the National prior to July 1, 1914, and 59 delivered between that date and January 1, 1918. These cars were lost or destroyed during the revolutionary disturbances in Mexico. Since January 1, 1917, cars have not been delivered to the National without the payment of a $2,000 bond. The agreement calls for the payment of 25 per cent of the $400,000 on execution and the remaining 75 per cent in three equal instalments, to be paid at six-month intervals thereafter.

Fixing Depreciation Rates

A meeting of a subcommittee of the valuation committee of the Association of Railway Executives at the Pennsylvania station, December 14, was attended by representatives of the government. The meeting was preliminary to tackling the question of fixing the rates for depreciation to be charged in the reports of the carriers on their different classes of property. Under the amended Interstate Commerce Act the Interstate Commerce Commission must fix such rates for depreciation, and it is logical that the Commission should turn to the executives for data on the situation.

New York Section of the A. S. C. E.

The Port of New York was the subject of the evening at the meeting of the New York Section of the American Society of Civil Engineers held on December 15. The subject was introduced by B. F. Cresson, Jr., consulting engineer, New York-New Jersey Port and Harbor Development Commission, who stated that the largest factor in the retarded development of the port of New York was contained in the lack of uniform administrative control. He also pointed out the difference between the two shores and the classes of traffic which passes through their terminal and piers, stating that the problem was far more than a local one—it was national in its scope, as about 50 per cent of export and import traffic of the country passed through it. Other speakers emphasized the need of full cooperation of New York State and New Jersey, pointing out the future possibilities of the Jersey shore, with its eight principal railroads as against but two on the Manhattan side, and stating that the problem was essentially a railroad one. The subject of piers, channels, loading and unloading machinery was discussed in relation to the speeding up of the turn-around of ocean and coastwise ships. The majority of the speakers advised a separation or classification of traffic between the two shores, believing that the Manhattan piers should handle local and New England traffic, etc., and the Jersey shores the south and west traffic, thus eliminating the complicated interchange across the river and its high costs. J. J. Mantell (Erie) spoke of the present inefficiency in the handling of freight, stating that it now cost about $50 a car to handle the freight from the yards in Jersey to Manhattan.

Meeting of Executive Committee Steam Railroad Section, National Safety Council

The executive committee of the Steam Railroad section of the National Safety Council, together with delegates from a number of railroads, making a total of 19 roads represented, met at the headquarters of the National Safety Council in Chicago, on December 14. The committee made plans for furnishing the magazines of the various railroad brotherhoods regularly with articles and news on the safety movement. The magazines of the Brotherhood of Railroad Trainmen, the Order of Railroad Conductors and the Switchmen's Union of North America are already publishing articles of this character. Arrangements were also made to provide a six months' supply of railroad safety bulletins.

The Committee on Accident Causes and Remedies called

attention to Bulletin 74 of the Interstate Commerce Commission, and advised that the commission is now preparing to issue its statistical information more promptly. The Program committee reported that its plans for the Tenth Annual Congress of the National Safety Council include the presentation of a court scene portraying the results of grade crossing accidents. The Membership committee reported that 117 railroads were now members of the National Safety Council, and outlined plans for enrolling the remaining carriers.

The meeting took up in general discussion a number of questions, including trespassing and dangers around freight stations, and laid plans for educating shippers to a realization of the extent of the economic losses incurred through careless and unsafe railroad practices.

Teredo Damage in San Francisco Bay
Twenty-Five Million Dollars in Two Years

A critical emergency has been caused in San Francisco Bay by the enormous increase in damage from marine borers to wharf structures within the past two years. This recent damage is most serious in the upper bay, from Mare Island Navy Yard up Carquinez Straits and the lower Sacramento river. A survey of the damage and an investigation looking to the best means of combating the marine borers have been undertaken by the Forest Products Laboratory of the U. S. Forest Service, in co-operation with the San Francisco Bay Marine Piling Committee of the American Wood Preservers' Association, under the chairmanship of F. D. Mattos, superintendent of Creosoting Plants for the Southern Pacific. This committee is composed of the engineering representatives of the State Board of Harbor Commissioners, the principal railroads, oil companies and shipping interests having waterfront structures in the bay, and who are financing the investigation, together with representatives of the Army, Navy, U. S. Engineer Corps, Immigration Commission and Lighthouse Board, and the University of California, the latter through Professor C. A. Kofoid, marine biologist, who is studying the biological aspects of the problem. The Forest Products Laboratory is represented by George M. Hunt, chief of the Section of Wood Preservation, and T. G. Townsend, engineer in forest products, who are conducting the survey. The executive officer of the committee is C. L. Hill, chief of the office of forest products, U. S. Forest Service, San Francisco. Its fiscal agent is E. M. Blake, who is also secretary of the committee.

This evil has existed for a long time in San Francisco Bay, due chiefly to limnoria, and to one of the teredo family called xylotrya. From Mare Island up the Sacramento river, however, there has, until within the past three years, been little trouble from marine borers on account of the large volume of fresh water discharged into the bay by the river. A decrease of fresh water flow, caused by several dry years, and the increasing diversion of irrigation water from the river, have apparently coincided with a new invasion of the teredo navalis, which is the species of shipworm that has caused such heavy damage to marine structures all over the world for centuries, but which has not previously been known in San Francisco Bay. This teredo has gone in large numbers to the upper parts of the bay. There, by reason of the past immunity, there were large quantities of untreated wooden piling, and the attacks of the teredo have been so rapid and severe that structures valued at millions of dollars are already practically destroyed. For the past year docks have been failing, and frequently dropping off into the bay, with accompanying menace to other structures. The damage, which has been estimated by the committee at twenty-five million dollars up to the present time, bids fair to greatly exceed that sum.

This study will be the first unit of a nation-wide investigation under the auspices of the United States Forest Service and co-operating associations of wood preservers, lumbermen, railroads and many other industries having interests at stake, which will cover the entire coastal waters of the continental United States.

As complete a report as possible is to be prepared by the committee on the findings to date for presentation before the seventeenth annual meeting of the American Wood-Preservers' Association, which will be held at San Francisco on January 25, 26 and 27, 1921. This report will contain maps and diagrams, and plates made from photographs and photomicrographs taken during the investigation.

Traffic News

The Traffic Club of Chicago held its fourteenth annual dinner at the Hotel LaSalle on December 16.

The Transportation Club of San Francisco, Cal., will hold its "Christmas Jinks" at the Palace Hotel on December 22. There will be a dinner and entertainment.

Thomas J. Burke, heretofore assistant commissioner of the Nashville (Tenn.) Traffic Bureau, has been appointed Commissioner of the Traffic Bureau at Charleston, S. C.

A traffic managers' division of the Manufacturers' Club of Mansfield, Ohio, has been organized. The officers are W. H. Gugler, chairman, and Wellington T. Leonard, secretary.

The movement of grain out of Alberta in November, over the Canadian Pacific, amounted to about 25,000 cars. This grain was mostly wheat, and the record compared with 16,000 cars in the largest preceding crop year, 1915.

Coal, coke and ore, loaded on the Pennsylvania System, during September, averaged 53 tons a car, and all carload freight averaged 43.4 tons. The Pennsylvania's campaign for increased carloading accomplished an increase of 4 per cent, viz.: June, 41.7 tons; July, 42.1; August, 42.2, and September, 43.4.

Continued improvement in transportation during November was again noted by the Federal Reserve Board in its monthly review of business conditions. "Freight congestion is reported practically at an end and both staples and coal are moving steadily to market as shipped," says the Board's review.

Fearing that increased freight rates will operate to the disadvantage of California goods in eastern markets, Governor W. D. Stephens has directed the California state market director to investigate the matter and to call a conference of representative men who can be of assistance in the preparation of a statement of conditions as they exist, together with constructive suggestions.

Representatives of the Michigan Traffic League and the Michigan railroads, in a meeting called by the Michigan Public Utilities Commission at Lansing, December 7, failed to agree as to whether the zoning system should be replaced or a new set of joint freight rates between the two peninsulas of Michigan be established, the matters in controversy.

Conrad E. Spens, vice-president of the Chicago, Burlington & Quincy, was the principal speaker before the Transportation Club of Peoria (Ill.) at the club's annual banquet held on December 9. Mr. Spens described the conditions preceding and during federal control and the improvements in operating efficiency and in the amount of traffic handled after the return of the roads to private management. Frank J. Bentley, traffic manager of the Illinois Steel Company, Chicago, spoke on "The Responsibility of the Shipper Under the Transportation Act of 1920." Nearly 400 railroad officers and shippers attended the banquet.

The Pennsylvania reports for the first ten months of this year 1,464,821 gross tons of coal and coke dumped at Canton piers, Baltimore, Md., or 204,332 tons more than the traffic at Canton for the entire twelve months of 1919. The total exceeds by 12,919 tons the dumpings for the two years 1916 and 1917 combined. The growth of this traffic is shown by the following:

Period	Canton dumpings (gross tons)	Period	Canton dumpings (gross tons)
10 months, 1920	1,464,821	1917	652,709
12 months, 1919	1,260,489	1916	799,193
1918	821,090	1915	884,633

The total for the month of October 272,406 gross tons, was 56,879 tons in excess of that for October, 1919, and was largest monthly record ever made.

Export and Import Rates

A hearing was held before the United States Shipping Board at Washington on December 6 as a part of an investigation by the board into the advisability of putting into effect Section 28 of the merchant marine law which provides that special export and import rates may be allowed by the railroads for freight to be shipped in American vessels. This provision of the law has been suspended until January 1 by the Interstate Commerce Commission, at the request of the board, in accordance with the provision in the law which authorized the suspension if its enforcement would result in inadequate boat service at the ports. Representatives of San Francisco and the North Pacific coast ports testified that there is insufficient American tonnage on the western coast to take the traffic and therefore they opposed the restriction of special rates to shipments for American vessels, on the ground that the foreign lines would remove their vessels from the Pacific ports and take freight from Atlantic ports. A similar position was taken by Edward Chambers, vice-president, Atchison, Topeka & Santa Fe; J. G. Woodworth, vice-president, Northern Pacific, and G. E. Stolp, Oriental traffic manager, Chicago, Milwaukee & St. Paul, who declared that the traffic of the transcontinental lines would be seriously affected unless they were allowed to continue the special rates to the Pacific coast.

A Quarter-Billion of Passengers

P. H. Woodward, general passenger agent of the Long Island, in a paper read recently before the American Society of Civil Engineers, in New York City, estimated that 285 million passengers would be carried to and from New York (Manhattan) in the current calendar year. The principal items are based on figures reported by the Public Service Commission for 1919, and are as follows:

PASSENGERS CARRIED TO AND FROM NEW YORK CITY

Long Island Railroad—Three terminals: Pennsylvania Station, Flatbush Avenue (Brooklyn), and Long Island City. To and from subway and elevated line at Woodside and Hunterspoint avenue	48,786,000
New York Central	25,361,499
New York, New Haven & Hartford	14,886,158
Pennsylvania	13,940,000
Central of New Jersey	16,720,600
Delaware, Lackawanna & Western	20,400,000
Erie Railroad	25,116,849
New York, Westchester & Boston	3,750,806
New York, Ontario & Western	538,692
Lehigh Valley	408,000
Baltimore & Ohio	510,000

The Pennsylvania Railroad, in addition to the 13,940,000 passengers carried in and out of the Pennsylvania station and the ferry terminals at Cortlandt and Desbrosses streets, took or left 4,420,000 passengers at its Jersey City Terminal, and transferred to and from the Hudson & Manhattan at Manhattan Transfer a total of 22,640,000, a grand total for the Pennsylvania of 41,000,000 passengers. The Staten Island Rapid Transit carried on Staten Island a total of 10,205,000

In the case of the Delaware, Lackawanna & Western, it is estimated that 50 per cent of its passengers transferred to and from the Hudson & Manhattan at Hoboken, and in the case of the Erie, 60 per cent transferred to and from the Hudson & Manhattan in Jersey City. The Hudson & Manhattan carried 92,571,928 passengers during that year.

"Therefore, these figures, after taking duplications into account as far as the Hudson & Manhattan is concerned, represent over 250,000,000 passengers a year. This year (1920), if all of the lines enumerated have increased in the same ratio as the Long Island, 14 per cent, or 35,000,000, will be added, making a total of 285,000,000."

Export and Import Rate Limitation Suspended

The Interstate Commerce Commission on December 11 suspended from January 1, 1921, until further order of the commission, the provisions of Section 28 of the merchant marine act. This order was issued on a certificate by the United States Shipping Board that adequate shipping facilities for handling the commerce of the United States to and from foreign ports are not afforded by vessels documented under the laws of the United States and that the operation of the provisions of Section 28 should be suspended. Section 28 restricts preferential export and import railroad rates to shipments carried in vessels documented under the laws of the United States but provides for a suspension by the commission on certificate of the Shipping Board. The Shipping Board had announced on December 10 that it had issued the certificate to the commission following a hearing on the subject held on December 6. The board also announced a resolution that as soon as adequate shipping facilities, as required and defined by Section 28, to or from certain ports, become available, prompt certification of conditions will be made and the enforcement of the provisions of Section 28 will be requested. The board also resolved that every effort should be made to hasten the providing of American shipping facilities so that the provisions of Section 28 will be made operative at the earliest practicable date. Representatives of the Pacific coast ports and of some of the transcontinental lines opposed making Section 28 operative, on the ground that the traffic would be handled through Atlantic ports because of the insufficiency of American tonnage at Pacific coast ports.

New York State Passenger Fares

The Court of Appeals of the State of New York on December 10 affirmed the decision of the lower court requiring the New York Central to comply with the provisions of its charter, granted in the year 1853, limiting local passenger fares between Albany and Buffalo to two cents a mile. The railroad had claimed that under the Federal Transportation Act, 1920, the higher rates adopted by the Federal Government on account of the war emergency, should not be reduced except after affirmative action by the state authorities; but the court holds that the provisions of the original charter were only suspended during the operation of Federal power, and that the termination of Federal control automatically terminated the suspension. The court comments on the fact that the Interstate Commerce Commission has authorized the New York Central to increase its rates to 3.6 cents a mile. Whether this has the effect of overturning the old state rate is not passed upon in the opinion, but the railroad is given permission to present the record taken before the Interstate Commerce Commission to the Supreme Court at a special term, where the constitutional questions may be properly presented, none of them appearing in the present record.

The New York, Ontario & Western, the Erie, and other roads have asked the United States District Court for an injunction to forbid the officers of the state to interfere with the increase in passenger fares on New York State railroads as ordered by the Interstate Commerce Commission; and the court, Judge Ray presiding, has appointed a hearing on the petition at Norwich, N. Y., on January 12.

The railroads of the state are now subject to confusing orders from different courts. The Court of Appeals, the highest state court, has decided, in the case of the New York Central, as above noted, that the state law applies; that federal authority over intrastate rates ceased when the special legislation enacted because of the war had been accomplished. The State Supreme Court, in two proceedings, one at Brooklyn and one at Kingston, has forbidden the application of the rates ordered by the Interstate Commerce Commission; and the Interstate Commerce Commission has ordered a general advance to 3.6 cents a mile, basing its authority on the decision of the United States Supreme Court.

In their application to the Federal Court the railroads declare that the proceedings taken by the Public Service Commission and Attorney General for state control of fares prevented the roads from carrying out the increase ordered by the Interstate Commerce Commission and subjected them to multitudinous and vexatious suits for penalties; and that unless restrained the defendants would institute suits and prosecutions against the roads to prevent them from complying with the Interstate Commerce Commission's order. This, it was claimed, would wrongfully deprive the roads of large revenues. The roads also alleged that they would be met with constant and continuous refusal of passengers to pay the 20 per cent increase while yet the carriers would be under legal obligation to collect the rates or remove the passengers from trains. This would result in great public inconvenience, the obstruction of the plaintiff's business and a multiplicity of suits for overcharges. Non-compliance with the federal order makes a carrier liable to severe penalties.

The injunction granted at Kingston was to be further argued this week.

Commission and Court News

Interstate Commerce Commission

The commission has instituted a proceeding of investigation in the Arizona intrastate rate case.

The commission has suspended until April 9 the proposed cancellation of commodity distance rates on logs, c.l., between points in South Carolina applicable on interstate traffic, published in an Atlantic Coast Line tariff, indicated as effective December 10, 1920.

Oral arguments were heard by the Interstate Commerce Commission on December 13, 14 and 15, in the Utah, Illinois, Florida, Nebraska, Michigan, Indiana and Ohio state rate cases involving the refusal or failure of the state authorities to allow increases in intrastate rates corresponding to those allowed for interstate.

The commission has further suspended from December 9 to January 8 the cancellation of through joint rates in connection with the Missouri & Kansas. The suspended tariffs provide for the cancellation of joint through commodity rates from various points in Missouri, Kansas, Oklahoma, Texas and other central western states to Rosedale, Kan., and Westport, Mo.

The commission has suspended until April 22, the operation of certain tariffs cancelling joint through commodity rates on cement, c.l., from points in Colorado, Indiana, Iowa, Kansas, Minnesota, Missouri, Oklahoma and Wisconsin to Rosedale, Kan., and Westport, Mo., via Lenexa, Kan., in connection with the Missouri & Kansas Railway, leaving combination rates applicable instead.

The commission has further suspended until January 2, 1921, the operation of paragraph 2 of Note 1, in Item 2-B of Supplement No. 2 to J. E. Fairbanks' tariff I. C. C. No. 8, and paragraph designated by number 2, on second page of Supplement No. 1 to East St. Louis Junction Railroad tariff I. C. C. No. 3, wherein it is proposed to impose a storage charge of $10 per car per day on coal or coke not released within the free time.

Hearing on New England Rate Divisions

The committee of 11 executives appointed at a recent conference to try to work out by voluntary agreement some plan for improving the financial condition of the New England railroads by increasing their divisions on through rates to and from points west of the Hudson river having failed to accomplish any results, the question has been put up to the Interstate Commerce Commission for a solution and a hearing was begun at Washington before Chairman Clark on December 15 on the formal complaint filed by the New England railroads some time ago against those west of the Hudson river, asking the commission to fix the divisions which should accrue to the New England lines. Charles F. Choate, Jr., counsel for the New England lines, made an opening statement in which he said that the net operating income for September and October of the New England lines was $3,591,000 less than enough to pay fixed charges and that the estimated income for a year would be at least $24,000,000 short of a 6 per cent return. He said that many of the divisions accruing to the New England lines were established 40 or 50 years ago and that operating costs have mounted faster in New England than in other parts of the country. Mr. Choate was followed by witnesses who began an elaborate statistical presentation to show the reasons for higher operating costs in New England and why the divisions should be increased. The New England case is being conducted on the theory that when the commission included the New England lines in the Eastern district and allowed the same percentage of rate increase for the entire district it gave the lines west of the Hudson river $25,000,000 a year of increased revenue because of the effect on the showing for the Eastern lines as a whole of the subnormal condition of the New England roads.

United States Supreme Court

The Supreme Court of the United States on December 13 denied a writ of certiorari to review the decision of the Court of Appeals for the Fourth Circuit in the case of the Lambert Run Coal Company against the Baltimore & Ohio in which the court sustained the order of the Interstate Commerce Commission authorizing railroads to assign cars for coal.

Safety Appliance Act Applies to Terminal Railroads

The Supreme Court of the United States has reversed the decision of the Circuit Court of Appeals, Eighth Circuit (255 Fed. 655) which affirmed a verdict for the Northern Pacific in the suit against it for violating the Safety Appliance Act by operating over its four-mile terminal railroad along the waterfront of Duluth, in September, 1916, two transfer trains, not having 85 per cent of the power brakes coupled. The company contended that the act did not apply because this terminal road was not part of a main line. The Supreme Court says, in part, by Mr. Justice Brandeis: "There is nothing in the act which limits this provision to operations on main line tracks. It is applicable to 'all trains * * * used on any railroad engaged in interstate commerce.' It is admitted that this railroad is engaged in interstate commerce; and the cases cited show that transfer trains, like those here involved (over 40 cars each) are 'trains' within the meaning of the act. A moving locomotive with cars attached is without the provision of the act only when it is *not* a train; as where the operation is that of switching, classifying and assembling cars within yards for the purpose of making up trains. Congress has not imposed upon courts applying the act any duty to weigh the dangers incident to particular operations; and we have no occasion to consider the special dangers incident to operating trains under the conditions here presented."—United States v. Northern Pacific. Decided December 6, 1920.

Injuries of Express Messengers

An express messenger, Taylor, injured in a derailment on the St. Louis & San Francisco in Mississippi, obtained a judgment in that state against the railroad, which was affirmed by the State Supreme Court (58 So. 485). The contract between the express company and the railroad company bound the former to indemnify the railroad for all damages paid to express messengers while on the trains. The injured employee's agreement with the express company provided that he should assume all risks incident to his employment, from whatever cause arising. The express company sued the messenger on the theory that he violated this agreement and perpetrated a legal fraud on the express company by obtaining the judgment against the railroad. The Circuit Court of Appeals, Fifth Circuit, dismissed the bill (249 Fed. 109) for the reason that under §5 of the Federal Employers' Liability Act the messenger's agreement was void.

The Supreme Court of the United States has reversed that decision, holding that the District Court for the Northern District of Mississippi was right in holding Taylor's action and judgment a legal fraud on the express company and directing him to execute a release of all claims on account of his injuries.

Taylor was not in the railroad company's employ and did not obtain his judgment against the railroad on that theory. The fact that the railroad provided the express car was not material. The court holds that the Employers' Liability Act does not embrace a common carrier by express which neither owns nor operates a railroad, but uses and pays for railroad transportation as the express company does. In the court's opinion, the words, "common carrier by railroad," as used in the act, mean one who operates a railroad as a means of carrying for the public—that is to say, a railroad company acting as a common carrier. As Taylor was not an employee of the railroad company, and the express company was not within the Employers' Liability Act, the act has no bearing on the liability of either company, or on the validity of the messenger's agreement. There being no statute regulating the subject, the messenger's agreement was a valid and binding contract whereby Taylor assumed all risk of injury, assented to the arrangement between the two companies and bound himself to refrain from asserting any liability against either company for such injuries.—Wells, Fargo & Co. v. Taylor. Decided December 6, 1920. Opinion by Mr. Justice Van Devanter.

Foreign Railway News

Concrete Car on Austrian Railways

The Austrian Railways have recently placed in service an experimental concrete coal car. Impact tests of the car under very severe conditions show that it withstood the stresses set up when coupling at high speeds better than the ordinary type of car.

Mexican Project Fast Nearing Completion

The work on the line which is being built by the National Railways of Mexico, from Allende, Coahuila, to Del Rio, Tex., connecting with the Southern Pacific at that point, is being pushed, and only 21 miles yet remain to be built, according to advices from Mexico City.

Railway Extension in Argentina

The Pacific Railway of Argentina has begun the construction of an extension of its line from Stroeder to Carmen de Patagones, a distance of 40 miles. A further extension will be made to connect this line and the Southern Railway with the government lines in the vicinity.

Large Deficit on Italian Roads

The deficit of the Italian government railways for the fiscal year ending June 30 was $163,400,000, according to reports from Rome. The total revenue from all sources was $415,910,000 and the total expenses $579,310,000. It was pointed out that this figure for the deficit is probably too small in view of the deterioration of the lines during the period due to the lack of adequate allowances for maintenance.

Export of Steam Locomotives in October

The exports of steam locomotives in October totaled 138, valued at $3,894,750. Of these 47, valued at $1,631,093, were destined for Cuba; 18, valued at $762,000, for Argentina, and 18, valued at $633,000, for China. The detailed figures by countries, as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce, are as follows:

Countries	Number	Dollars
France	2	31,417
Italy	2	30,947
Spain	4	152,800
Canada	14	105,702
Panama	4	6,456
Mexico	8	128,223
Cuba	47	1,631,093
Argentina	18	763,000
Brazil	2	32,350
Chile	2	4,940
Peru	2	22,350
China	18	633,000
British India	6	189,000
Peru	2	22,330
Philippine Islands	1	8,630
British West Africa	2	53,662
Portuguese Africa	4	83,200
Total	138	3,894,750

French Railways Want Money from America

The French railways are making plans to present claims for vast sums against the American government, according to a Paris despatch to the New York Herald. It is pointed out that the United States army has a receipt in full for its railway bill with the French railways, but the carriers are said to maintain that various expenses in connection with the transport business of the American army, not foreseen when the bills were presented, have now manifested themselves. The deficit of the Etat for the war period is estimated at $200,000,000, that of the Nord at $80,000,000, of the Est at $60,000,000, and the combined deficit of the Paris-Lyons-Mediterranean, the Midi, and the Orleans at $120,000,000. The despatch says that it is proposed to levy one-fifth of the total deficit against Great Britain and four-fifths against the United States, on the grounds that the sudden arrival of the American forces caused the greater congestion of traffic and occasioned the disruption of the railway service generally.

New Bridge for Peking-Hankow Railway

A cablegram from commercial attache Julean Arnold at Peking on November 27 reports that the ministry of communications is calling for bids for a bridge over the Yellow River for the Peking-Hankow Railway, to replace the present structure, which is unsafe for heavy traffic. The new bridge will be about 10,000 feet in length and will call for a permissible loading of Cooper E-50 and is estimated to cost between $15,000,000 and $20,000,000.

Exports of Car Wheels and Axles in October

The exports of car wheels and axles in October fell considerably below the showing for September. The October shipments showed a total value of $543,753. Cuba was the destination of consignments valued at $104,766. Kwantung came next, with shipments valued at $91,639. The detailed figures as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce follow:

Countries	Dollars	Countries	Dollars
Italy	41,410	Chile	1,200
Russia in Europe	11,970	Colombia	299
Spain	8,686	Ecuador	861
England	221	Dutch Guiana	440
Scotland	17,768	Peru	2,947
Canada	49,827	Venezuela	230
Costa Rica	76	China	44,900
Honduras	193	Kwantung	91,639
Panama	11,699	British India	19,285
Salvador	2,065	Dutch East Indies	3,000
Mexico	6,451	Japan	26,019
Newfoundland and Labrador	125	Australia	2,021
Jamaica	193	New Zealand	5,838
Trinidad and Tobago	407	Philippine Islands	13,774
Cuba	104,766	British South Africa	3,252
Dominican Republic	1,498		
Argentina	9,554	Total	543,753
Brazil	61,139		

Exports of Cars in October

The exports of passenger cars in October amounted to 22, of a total value of $73,500. Mexico, with 13, valued at $26,500, was the largest purchaser of this equipment. Freight cars numbering 927, valued at $1,462,603 were exported during the month, showing a falling off of almost 50 per cent, when compared with the shipments for September. Of the total freight cars shipped, 495, or more than 50 per cent, were destined for Cuba. Exports of cars for other than steam railways totalled 598, valued at $199,891. The Philippine Islands were the largest purchasers of this equipment, these consignments amounting to 450, valued at $123,525. The value of car parts exported was $711,494, and the Philippines was the destination of this material to the value of $145,868. The detailed figures by countries, as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce, are as follows:

Countries	Steam: Passenger No.	Steam: Passenger Dollars	Steam: Freight and other No.	Steam: Freight and other Dollars	For other railways No.	For other railways Dollars	Parts of cars Dollars
Belgium	..	.....	...	.....	...	.....	2,874
France	..	.....	...	.....	...	.....	583
Germany	..	.....	...	.....	...	.....	1,483
Italy	..	.....	...	.....	1	240	185
England	..	.....	...	.....	...	.....	35,893
Canada	8	27,500	96	94,653	4	473	82,632
Honduras	..	.....	2	2,610	...	.....	.....
Salvador	..	.....	...	.....	...	.....	1,362
Mexico	13	26,500	139	136,648	9	7.517	33,945
Jamaica	..	.....	...	.....	...	.....	4,389
Trinidad and Tobago	..	.....	...	.....	...	.....	2,545
Other Brit. W. Indies	..	.....	...	.....	...	.....	1,059
Cuba	1	19,500	495	872,767	39	38,315	44,451
Virgin Islands of U. S.	..	.....	...	.....	...	.....	7,240
Dominican Republic	..	.....	6	4,314	...	.....	3,253
Argentina	..	.....	...	.....	12	1,020	93,104
Brazil	..	.....	...	.....	10	2,000	45,678
Chile	..	.....	35	38,445	...	.....	.....
Colombia	..	.....	...	.....	...	.....	2,755
Ecuador	..	.....	...	.....	15	2,850	.....
Peru	..	.....	4	1,200	30	11,526	1,362
China	..	.....	...	.....	8	550	106,847
Kwantung	..	.....	44	81.312	...	.....	1,275
British India	..	.....	...	.....	25	10,580	750
Other Brit. E. Indies	..	.....	...	.....	...	.....	508
Dutch East Indies	..	.....	5	11,918	1	2,295	338
Japan	..	.....	...	.....	...	.....	78,940
Philippine Islands	..	.....	...	.....	450	123,525	145,868
British South Africa	..	.....	100	218,736	...	.....	10,730
Portuguese Africa	..	.....	...	.....	...	.....	1,445
Total	22	73,500	927	1,462,603	598	199,891	711,494

New Mechanical Department Head on London & North Western

Captain H. P. M. Beames has been appointed by the London & North Western to be chief mechanical engineer of its Crewe works and the hydraulic department, with headquarters at Crewe, England, effective December 1. He succeeds the late C. J. Bowen Cooke, who had occupied the position of chief mechanical engineer since June, 1909, until his death, which occurred October 19. Captain Beames hitherto was locomotive works manager at Crewe—a position which he had held since April, 1916. He has for many years been associated with the London and North Western mechanical department, having entered the Crewe works as an apprentice in January, 1895. After his elementary training, he held numerous positions of responsibility in the chief mechanical engineer's department, which he has filled with distinctive ability. Captain Beames has also seen considerable military service. On the outbreak of the South African War, he volunteered and served as a private, and was later promoted to sergeant. When the European war broke out, he again volunteered for military service and was commissioned a captain in the Royal Engineers. When the war was over he returned to his position as assistant to the mechanical engineer at Crewe works.

Exports of Track Materials in October

The figures for the exports of all kinds of track materials in October show substantial increases over the September statement. Spikes weighing 3,534,645 lb., and valued at $142,611; 53,266 tons of rails, valued at $3,426,671, and switches, frogs, splice bars, etc., valued at $689,785, are the totals for the month. The largest shipments of spikes, 1,476,000 lb., valued at $59,241, went to Cuba. Cuba, likewise, was the largest purchaser of rails, switches, frogs, splice bars, etc. The rail shipments to Cuba totalled 11,983, valued at $699,112, and that country's consignments of switches, frogs, splice bars, etc., were valued at $142,533. The detailed figures, as compiled by the Division of Statistics of the Bureau of Foreign and Domestic Commerce, are as follows:

Countries	Spikes		Steel rails		Switches, frogs, splice bars.
	Pounds	Dollars	Tons	Dollars	Dollars
Belgium	.....	.....	.....	.....	30,930
Denmark	.....	.....	.....	.....	362
Finland	.....	.....	.....	.....	191
France	.....	.....	.....	.....	6,104
Netherlands	.....	.....	675	45,394	.....
Norway	.....	.....	.....	.....	612
Portugal	.....	.....	.....	.....	3,408
Roumania	.....	.....	340	22,320	.....
Russia in Europe	495,694	14,973	2,173	140,207	8,399
Spain	152,540	6,011	1,302	73,366	18,694
Sweden	.....	.....	1,492	102,040	16,041
Scotland	.....	.....	370	16,598	22,911
Canada	99,572	5,790	541	33,178	41,494
Costa Rica	20,000	1,448	.....	.....	703
Guatemala	5,200	470	.....	.....	.....
Honduras	20,000	1,008	1,526	88,947	17,330
Nicaragua	7,200	483	.....	.....	.....
Panama	2,200	181	54	4,400	1,719
Salvador	1,800	216	.....	.....	.....
Mexico	77,025	4,285	2,468	143,025	18,631
Newfoundland and Labrador	.....	.....	.....	.....	144
Jamaica	21,800	1,380	124	9,719	5,459
Trinidad and Tobago	.....	.....	.....	.....	4,752
Cuba	1,476,061	59,241	11,983	699,112	142,533
French West Indies	10,002	300	.....	.....	300
Haiti	.....	.....	.....	.....	383
Dominican Republic	11,100	675	28	2,385	995
Argentina	37,000	1,468	942	67,154	18,731
Bolivia	.....	.....	.....	.....	3,460
Brazil	429,080	12,688	6,518	470,405	93,576
Chile	100,900	2,990	185	12,250	35,862
Colombia	16,024	1,481	342	20,190	11,501
Ecuador	11,599	767	23	1,500	10,542
British Guiana	.....	.....	.....	.....	715
Dutch Guiana	.....	.....	.....	.....	1,366
Peru	.....	.....	1,458	105,093	46,780
Venezuela	19,200	1,354	68	3,918	1,786
China	3,800	236	3,199	200,411	1,184
Kwantung	.....	.....	96	5,800	.....
British India	.....	.....	267	17,059	4,718
Straits Settlements	1,800	111	26	1,831	133
Dutch East Indies	46,627	1,928	4,476	274,118	8,521
Hongkong	19,200	1,142	251	16,566	692
Japan	378,221	17,678	4,745	348,136	32,587
Australia	.....	.....	.....	.....	89
New Zealand	.....	.....	441	77,234	58
Other British Oceania	.....	.....	.....	.....	140
Philippine Islands	71,000	4,307	1,502	107,385	49,215
British South Africa	.....	.....	564	42,527	4,818
French Africa	.....	.....	5,004	270,243	.....
Italian Africa	.....	.....	.....	.....	21,216
Portuguese Africa	.....	.....	83	4,160	.....
Total	3,534,645	142,611	53,266	3,426,671	689,785

Equipment and Supplies

Equipment Deliveries and Orders

The Railway Business Association, in a circular to members of that organization, discussing recent developments in the railway field, gives some interesting figures concerning car and locomotive orders and deliveries in 1920 as compared with previous years.

The circular gives the following details:

Rolling stock acquired by United States and Canadian railways during 1920 to November 1, is stated by the Bureau of Railway Economics upon inquiry of the Railway Business Association as follows:

DELIVERIES (DOMESTIC) JAN.-OCT., INC., 1920

Locomotives	1,484
Freight cars	19,329

By the same authority the locomotives and freight cars delivered in the record year 1907 and in each of the four years 1916-1919, inclusive, are thus tabulated:

Year	Locomotives	Freight cars
1907	6,564	280,216
1916	2,708	111,516
1917	2,585	115,705
1918	3,668	67,063
Average 16-18	2,987	98,094
1919	2,162	98,981
1920 (estimated)	1,792	23,194

Taking 1920 deliveries to November 1 as five-sixths, the year's output at the same rate would be estimated as locomotives 1,792, freight cars 23,194.

COMPARISONS

In comparing this showing with past performance, it is approximately appropriate to regard 1918, the first full year of government control, as a year in which deliveries were the result of orders placed largely by the railways, and 1919 and 1920 as years in which deliveries were the result of orders placed largely during government control. With this in view, 1916-1918 are grouped and averaged. We have then that the estimate of the 1920 locomotives is 83 per cent of the 1919 deliveries, 60 per cent of the 1916-1918 average, and 27 per cent of the 1907 deliveries; and the 1920 estimate of freight cars 23 per cent of 1919, 23 per cent of the 1916-1918 average and 8 per cent of the 1907 deliveries.

FREIGHT CAR ORDERS

As emphasized above, deliveries in 1920 to September 1 were based on orders placed under government control. Some of the orders may have been given after March 1, when the President relinquished the roads, but the rate increase did not become effective until August 26, and the government guarantee continued until September 1, so that the first significant months in appraising railway orders are September and October. In September the orders for freight cars were 2,201, in October, 3,936. Freight car orders for the record year 1905 and for 1916 to 1920, inclusive, are taken from annual and monthly reports published by the *Railway Age*:

Year	Freight car orders
1905	341,315
1916	170,054
1917	79,367
1918	123,770
Average, 1916-18	124,397
1919	29,893
1920 (January-October)	54,719
1920 (estimated on 10 months)	65,652
1920 (September-October)	6,137
1920 (estimated on September-October)	36,822

Taking January to October, inclusive, as ten-twelfths, the estimate for a year's orders is 65,652, which is 212 per cent of 1919, 52 per cent of the 1916-1918 average and 19 per cent of 1905. Taking September and October alone as two-twelfths, the estimate for the year's orders would be 123 per cent of 1919, 29 per cent of the 1916-1918 average, and 10 per cent of 1905.

Locomotives

THE TENNESSEE COAL, IRON & RAILROAD is inquiring for 1 passenger locomotive, 2 Consolidation locomotives, and 1, 6-wheel switching locomotive.

THE ATLANTIC COAST LINE is inquiring for 100 cars. This road was inquiring in September for 100 phosphate cars, but withdrew its inquiry for this equipment, as noted in the *Railway Age* of November 19.

THE PITTSBURGH & WEST VIRGINIA has ordered 6 Consolidation type locomotives from the American Locomotive Company. These locomotives will have 25 by 32 in. cylinders, a total weight in working order of 238,000 lb. and will be equipped with superheaters.

THE CUBA CANE SUGAR CORPORATION, 123 Front street, New York, has ordered 3 Consolidation type locomotives from the American Locomotive Company. These locomotives will have 19 by 26 in. cylinders and a total weight in working order of 137,000 lb.

THE CHEMINS DE FER DE LA PROVINCE DE SANTA FE (Argentina) has ordered 10 Pacific type locomotives from the American Locomotive Company. These locomotives will have 16 by 20 in. cylinders, a total weight in working order of 105,000 lb. and will be equipped with superheaters.

THE WESTERN PACIFIC, reported in the *Railway Age* of November 19 as inquiring for 10 Mikado locomotives, has ordered 5 of these locomotives from the American Locomotive Company. The locomotives will have 28 by 30 in. cylinders, a total weight in working order of 323,000 lb. and will be equipped with superheaters.

THE RIO GRANDE DO SUL STATE RAILWAY (Brazil), reported in the *Railway Age* of November 5, as having opened bids on September 20, for 25 locomotives, has ordered 5 Mikado type locomotives from the American Locomotive Company. These locomotives will have 16 in. by 22 in. cylinders, a total weight in working order of 110,000 lb. and will be equipped with superheaters.

THE INSPECTORIA FEDEROL DAS OBRAS CONTRA AS SECCAS (Brazil) has ordered from the American Locomotive Company 6 Consolidation type locomotives with 16 by 20 in. cylinders and a total weight in working order of 80,000 lb.; 8, 10-wheel type locomotives with 15 by 20 in. cylinders and a total weight in working order of 74,000 lb.; also 6, 4-wheel tank locomotives with 9 by 14 in. cylinders and a total weight in working order of 29,000 lb.

Freight Cars

THE BARBER ASPHALT PAVING COMPANY, Maurer, N. J., is inquiring for 50, 40-ton flat cars.

THE PITTSBURGH MACHINERY COMPANY, Pittsburgh, Pa., has renewed its inquiry for from 45 to 50, 10,000-gallon tank cars.

THE KATANGA RAILWAYS (Congo, Belgian Colony) is inquiring, through car builders, for 50 triple-hopper cars and 60 flat-bottom gondola cars.

THE NORFOLK & WESTERN was reported in the *Railway Age* of December 10, as having authorized the construction of 1,000, 120-ton hopper cars in the Roanoke shops. Later advices are to the effect that the company does not intend to construct these cars at the present time; the work has been postponed.

THE NATIONAL RAILWAYS OF MEXICO.—Bids were received recently by John S. Stanley, 111 Broadway, New York, for 750 box cars, 250 stock cars, 250 flat cars, 250 gondola cars and 100 tank cars, for export to Mexico. The above equipment is not a part of Florian & Co.'s contract, reported by this firm as having been made with the National Railways, and mentioned in our issue of November 19.

Iron and Steel

THE CHICAGO, INDIANAPOLIS & LOUISVILLE has ordered 352 tons of steel from the Indiana Bridge Company, Muncie, Ind., for a freight car repair shop at Lafayette, Ind.

THE SOUTHERN PACIFIC has placed orders for 68,400 tons of rails for its 1921 requirements with the following companies: Tennessee Coal & Iron Company, 50,000 tons; Colorado Fuel & Iron Company, 14,046 tons; Lorain Steel Company, 2,354 tons, and the Manganese Steel Rail Company's order for 2,000 tons, mentioned last week.

Supply Trade News

The Bastian-Blessing Company, Chicago, Ill., manufacturer of Rego oxy-acetylene and oxy-hydrogen products, has appointed the **Beck-Hill Corporation,** 22 Thames street, New York, as its sole eastern railway representative.

The Union Asbestos & Rubber Company, Chicago, whose factory was destroyed by fire on the morning of December 1, with an estimated loss of $35,000, are continuing their business in temporary quarters.

The Chicago Bridge & Iron Works, Chicago, Ill., has opened a new sales office at Atlanta, Ga., in the Forsythe building. **Joseph L. Zeller,** who has been with this company for a number of years, is in charge of this office and will handle sales in Georgia, Alabama, Tennessee and Florida.

C. A. Eggert, who for a number of years was connected with the sales department of the Consolidated Car Heating Company, Albany, N. Y., has entered the employ of the **O. M. Edwards Company, Inc.,** Syracuse, N. Y., as sales manager of its central district, with office at 1425 Edison building, Chicago, Ill.

Richard Sanderson, manager of the New York office of the **Baldwin Locomotive Works** and the **Standard Steel Works Company,** Philadelphia, Pa., has been transferred to Philadelphia as vice-president in charge of sales of the Standard Steel Works Company, succeeding **Robert Radford,** resigned. Mr. Sanderson was born on July 30, 1888, at Lynchburg, Va., and was educated at Worcester Polytechnic Institute, leaving there in 1910. He started as an apprentice on the Seaboard Air Line, later finishing his apprenticeship at the Baldwin Locomotive Works. In 1912 he entered the New York office as assistant representative of the sales department for both the Baldwin Locomotive Works and the Standard Steel Works Company, remaining in that capacity until April 1, 1919, when he was made manager of the New York office for both companies. On December 1 he was elected vice-president of the Standard Steel Works Company, as above noted.

R. Sanderson

The **Reade Manufacturing Company** has recently moved from Hoboken, N. J., into its new factory at Jersey City, N. J., where additional facilities are available. Two new departments, a traffic department and a mechanical or service department, have been added to the organization, both of which are under the supervision of **R. H. Vogle,** sales manager of the railroad department.

H. W. Jacques, for the past six years manager of the railway supply department of the Simmons Hardware Company, St. Louis, Mo., has left the service of that company and has established an office at 404 Parkway building, Philadelphia, Pa. He will represent in the railroad field the following firms: Baldwin Tool Works, Parkersburg, W. Va.; Fayette R. Plumb, Inc., Philadelphia, Pa.; Columbus Handle & Tool Company, Columbus, Ind.; American Handle Company, Jonesboro, Ark.; Keller & Tamm Manufacturing Company, St. Louis, Mo.; Western Tinware Company, St. Louis, Mo.

Financial and Construction

Railway Financial News

BALTIMORE & OHIO.—At the annual meeting of the directors in New York on December 14, Daniel Willard was re-elected president and with him his staff of executive officers. The directors also declared the regular semi-annual dividend of 2 per cent on the preferred stock, payable March 1 to stock of record January 15.

The combined income statement for the year ended December 31, 1920, partly estimated, shows a net railway income of $28,283,387, an increase of $534,563; other corporate income, $5,175,968; and an estimated surplus of $2,044,169.

BOSTON & MAINE.—The directors on December 10 failed to take action on the preferred stock dividends which are due for payment January 1. The dividends are cumulative. President James H. Hustis explained this as follows: "The present uncertainty as to revenues and expenses is the direct cause. Inability to obtain large amounts from the government, coupled with the fact that earnings have been unsatisfactory during the two months following the guarantee period, also made this action desirable. Furthermore, the failure to reach an agreement through conferences with the lines to the west, in the attempt to secure a larger division of the through freight rates, has made necessary the pressing of the case, which is set for hearing before the Interstate Commerce Commission on December 15."

CHESAPEAKE & OHIO.—The Interstate Commerce Commission has approved a loan of $3,759,000 to this company to apply to the purchase of freight train equipment consisting of 25 freight and switching locomotives and 1,000, 100-ton steel coal cars at an estimated total cost of about $5,200,000. The carrier, which is one of the principal coal carrying roads in the United States, is itself required to finance about $4,360,000 to meet the loan of the government.

CHESAPEAKE & OHIO.—This company has applied to the Interstate Commerce Commission for authority to guarantee at 6 per cent, 10-year promissory note of the Louisville & Jeffersonville Bridge & Railway Company for $50,000 to the secretary of the Treasury.

CHICAGO & NORTH WESTERN.—This company has applied to the Interstate Commerce Commission for authority to guarantee a 10-year promissory note of the Indiana Harbor Belt for $116,000 to the Secretary of the Treasury.

CHICAGO, MILWAUKEE & ST. PAUL.—The Interstate Commerce Commission has approved a loan of $25,340,000 to this company for maturing indebtedness.

CHICAGO, MILWAUKEE & ST. PAUL.—This company has applied to the Interstate Commerce Commission for authority to guarantee a 6 per cent, 10-year promissory note of the Indiana Harbor Belt for $116,000 to the Secretary of the Treasury.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has been authorized by the Interstate Commerce Commission to pledge and repledge, from time to time, all or any part of the $1,000,000 of first and refunding mortgage gold bonds, authorized to be issued by its order of October 4, as collateral security for any note or notes hereafter issued by the applicant maturing not more than two years after the date thereof, and aggregating, together with all other then outstanding notes of a maturity of two years or less, not more than 5 per cent of the par value of the securities of the carrier then outstanding.

INDIANA HARBOR BELT.—This company has applied to the Interstate Commerce Commission for authority to issue $579,000 of its 5 per cent, 50-year general mortgage bonds of 1907, to be pledged as collateral for promissory notes.

INTERSTATE RAILROAD.—This company has applied to the Interstate Commerce Commission for authority to issue stock to the amount of $385,000, to be sold at par, for the purchase of equipment and the improvement of its facilities, including a short extension.

LAKE SUPERIOR & ISHPEMING.—This company has applied to the Interstate Commerce Commission for authority to issue $2,000,000 additional stock, to be distributed to its stockholders pro rata as a stock dividend, to capitalize a surplus representing expenditures for improvements made out of earnings.

MINNEAPOLIS & ST. LOUIS.—This company has applied to the Interstate Commerce Commission for authority to issue notes to the amount of $230,000 at 6 per cent, payable in 10 semi-annual instalments to the American Locomotive Company in part payment for the purchase of 5 Pacific type passenger locomotives.

NEW YORK, NEW HAVEN & HARTFORD.—A mortgage of $95,000,000 has been executed and delivered to the Bankers' Trust Company of New York, trustee. The mortgage is a first lien upon 422 miles of the company's lines. A total of not more than $95,000,000 of new bonds are authorized by the mortgage. Not exceeding $80,000,000 of the new bonds are authorized to refund the company's indebtedness to the United States Government incurred during the period of federal control. Not exceeding $15,000,000 of the new bonds are authorized to be issued for security to the United States for new loans that may be made to the company for equipment and betterments.

PEORIA & PEKIN UNION.—This company has applied to the Interstate Commerce Commission for authority to extend the time of payment of its first mortgage bonds maturing February 1, 1921, amounting to $1,495,000, for 5 years, and to increase the rate of interest from 6 to 7 per cent; also to extend for 5 years its second mortgage bonds to the amount of $1,499,000, and to increase the rate of interest from 4½ to 7 per cent.

SOUTHERN.—This company has applied to the Interstate Commerce Commission for authority to nominally issue $5,900,000 of its development and general mortgage 4 per cent bonds, payable April 1, 1956, to be pledged as security in part for a loan of $3,825,000 from the revolving fund authorized by the Interstate Commerce Commission to aid the company in the acquisition of new equipment.

TENNESSEE & NORTH CAROLINA.—This company has applied to the Interstate Commerce Commission for authority to issue $2,500,000 of capital stock and for a certificate authorizing the acquisition of the line from Newport, Tenn., to Waterville, N. C., as a consolidation of two companies of the same name, one incorporated in Tennessee and one in North Carolina.

Railway Construction

ATLANTIC COAST LINE.—This company has awarded a contract to the Lackawanna Bridge Company, Buffalo, N. Y., for the construction of a reinforced concrete phosphate elevator at Tampa, Fla., to cost approximately $40,000.

CANADIAN NATIONAL.—This company has awarded a contract to the Pacific-Atlantic Construction Company, Ltd., Vancouver, B. C., for the completion of the company's terminal improvements at Vancouver, at a cost of approximately $350,000.

DULUTH & IRON RANGE.—This company has applied to the Interstate Commerce Commission for certificate authorizing it to construct a line of 2.91 miles between Divide and Babbitt, Minn.

MISSOURI, KANSAS & TEXAS.—This company will shortly receive bids for the construction of a frame freight and passenger station, 60 ft. by 160 ft. in area, at Hominy, Okla., to cost about $21,000.

OKLAHOMA-SOUTHWESTERN.—This company contemplates extending its lines from Nuyaka, Okla., to Henryetta, a distance of 12 miles. The project will involve the construction of 10 bridges, including one 110 ft. steel span, and the remainder of wood with lengths from 50 to 200 ft. The company plans to let contracts for the grading and will lay the track with company forces. The estimated cost of the project is $600,000.

PERE MARQUETTE.—This company is receiving bids for the construction of a frame freight and passenger station at Clifford, Mich.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1920

Name of road.		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals.	Increase (or decr.) comp. with last year.
Alabama & Vicksburg	Oct.	141	$222,248	$88,641	$332,686	$83,768	$59,636	$8,176	$151,570	$12,617	$318,906	95.86	$13,781	—$871	—$862	$62,751
	10 mos.	141	1,891,205	738,684	2,869,816	581,113	570,099	65,236	1,114,916	111,704	2,474,314	86.22	395,502	255,131	282,531	101,237
Alabama Great Southern	Oct.	313	748,377	223,188	1,035,860	226,538	213,040	17,912	399,815	25,622	893,535	86.26	142,325	78,310	107,643	—129,055
	10 mos.	317	6,728,013	2,066,667	9,482,185	1,123,234	2,045,655	185,414	3,605,582	239,964	7,277,667	76.75	2,204,518	1,810,707	1,957,003	892,681
Ann Arbor	Oct.	293	438,442	56,415	514,347	82,466	94,151	9,520	225,641	16,863	428,667	83.34	85,681	68,206	45,500	—47,852
	10 mos.	298	3,518,044	594,121	4,401,994	686,904	937,922	74,890	2,098,242	149,815	3,948,083	89.69	453,911	280,472	43,158	—444,087
Atchison, Topeka & Santa Fe	Oct.	8,830	14,407,179	4,841,036	20,612,087	3,795,040	4,256,492	218,940	7,298,109	340,733	15,911,414	77.19	4,700,673	3,740,260	3,814,025	—695,094
	10 mos.	8,753	115,462,669	44,383,500	176,553,300	34,590,878	41,985,158	2,026,296	64,113,064	3,317,155	145,780,307	68.26	30,772,993	21,896,355	22,263,007	—8,143,506
Gulf, Colorado & Santa Fe	Oct.	1,907	2,146,589	664,741	2,968,630	689,280	607,854	37,843	1,122,714	61,439	2,515,110	84.72	453,520	366,158	364,969	—60,745
	10 mos.	1,913	14,875,593	5,398,998	21,927,618	6,168,130	4,876,479	284,625	10,256,923	580,556	22,130,217	100.92	—202,599	—1,072,487	—1,651,547	—3,160,716
Panhandle & Santa Fe	Oct.	857	694,740	179,377	914,358	247,383	241,192	5,710	341,508	18,587	854,310	93.43	60,049	34,491	2,113	—129,281
	10 mos.	806	5,499,130	1,648,586	7,624,251	2,014,891	2,549,275	48,755	3,288,695	181,024	8,075,572	105.92	—451,320	—695,005	—1,047,942	—674,854
Atlanta & West Point	Oct.	93	134,056	81,968	243,216	38,791	45,851	7,896	100,823	10,921	208,687	85.80	34,529	23,438	19,274	—47,039
	10 mos.	93	1,263,333	939,953	2,523,844	360,022	444,751	61,962	975,897	97,887	1,982,105	78.54	541,738	456,209	394,309	—56,995
Atlanta, Birmingham & Atlantic	Oct.	639	393,956	98,352	527,620	154,355	142,873	25,488	266,301	19,771	608,942	115.41	—81,322	—98,025	—84,858	—54,126
	10 mos.	639	3,518,482	876,064	4,816,548	1,225,254	1,455,727	207,027	2,651,264	194,112	5,734,224	119.05	—917,675	—1,083,250	—1,109,965	—302,045
Atlantic City	Oct.	177	140,149	178,840	328,564	92,314	60,275	3,923	237,554	1,586	395,753	120.45	—67,188	—82,663	—113,674	—79,127
	10 mos.	177	1,137,922	2,819,636	4,153,365	641,626	476,223	28,453	2,299,843	14,864	3,461,638	83.35	691,727	542,677	291,220	—545,701
Atlantic Coast Line	Oct.	4,886	4,506,374	1,437,600	6,395,512	910,048	1,472,048	87,636	2,706,675	139,092	5,347,532	83.61	1,047,980	770,542	903,312	73,354
	10 mos.	4,890	39,165,005	15,339,506	59,866,285	10,438,628	13,256,657	754,403	28,306,973	1,373,153	54,502,107	91.04	5,364,178	2,577,064	2,299,824	—2,869,819
Baltimore & Ohio	Oct.	5,153	20,614,952	2,986,463	25,015,395	3,045,011	6,000,369	233,588	11,124,014	541,867	21,101,401	84.35	3,913,994	3,367,968	2,881,282	1,349,826
	10 mos.	5,153	147,137,153	25,437,374	187,589,266	27,055,194	56,734,336	2,233,191	92,870,162	4,968,851	185,254,173	98.76	2,335,093	—3,378,080	—5,543,942	—10,253,736
Baltimore & Ohio Chicago Terminal	Oct.	90	.....	.....	281,168	36,512	49,434	1,285	221,433	11,791	324,835	115.53	—43,667	—74,836	26,550	—32,668
	10 mos.	90	.....	.....	1,814,513	413,041	566,134	14,159	1,581,291	116,423	2,942,942	162.19	—928,429	—1,231,787	—478,108	663,027
Baltimore, Chesapeake & Atlantic	Oct.	87	122,812	41,681	167,011	16,783	34,997	1,404	85,225	4,845	143,253	85.78	23,757	22,757	22,040	11,399
	10 mos.	87	865,049	439,528	1,388,747	142,055	440,922	13,371	853,120	41,897	1,493,365	107.53	—104,618	—136,218	—122,108	96,015
Bangor & Aroostook	Oct.	658	538,611	106,802	671,776	91,114	132,549	1,499	229,976	15,668	479,012	71.41	192,764	166,200	206,329	221,238
	10 mos.	658	4,185,586	896,287	5,450,151	1,216,199	1,283,443	37,661	2,084,334	188,347	4,888,120	89.69	562,031	307,447	633,033	601,074
Belt Ry. Co. of Chicago	Oct.	31	.....	.....	556,647	98,760	59,963	1,045	270,069	10,240	440,077	79.02	116,570	91,803	136,902	—2,224
	10 mos.	31	.....	.....	3,739,607	548,510	690,546	8,037	2,338,541	89,019	3,674,653	98.26	64,957	—165,887	1,359,780	28,183
Bessemer & Lake Erie	Oct.	225	2,077,531	[5]45,700	2,156,031	202,463	417,699	16,549	642,459	33,784	1,323,016	61.36	833,014	817,202	977,336	716,609
	10 mos.	225	11,923,405	[5]423,037	12,660,179	1,450,352	3,593,686	142,930	4,258,587	299,918	9,821,222	77.58	2,838,957	2,684,716	4,824,787	2,209,398
Bingham & Garfield	Oct.	36	34,595	1,823	39,233	13,032	1,918	2,331	14,200	5,057	36,642	93.40	2,590	—1,921	13,926	—30,747
	10 mos.	36	1,293,364	17,034	1,333,766	310,494	304,381	18,389	324,348	46,379	1,011,414	75.83	322,352	249,036	367,795	511,565
Birmingham Southern	Oct.	28	44,862	.....	63,099	4,373	6,261	994	35,674	3,586	50,887	80.65	12,211	10,439	5,077	2,243
	10 mos.	28	375,749	.....	520,879	44,217	79,755	9,926	312,786	35,784	482,468	92.63	38,411	20,821	—33,027	—77,745
Boston & Maine	Oct.	2,304	5,796,455	[2]2,237,093	8,713,545	1,590,997	1,964,282	70,783	4,624,755	308,593	8,606,976	98.78	106,569	—113,152	—568,628	—1,258,833
	10 mos.	2,295	43,803,850	[2]20,557,453	71,722,729	12,384,389	15,989,254	556,280	41,894,538	2,523,184	73,740,928	102.81	—2,018,200	—4,432,004	—8,441,771	—12,440,832
Brooklyn Eastern District Terminal	Oct.	9	116,847	.....	130,539	6,173	24,633	385	59,580	4,566	95,338	73.03	35,201	28,957	28,106	68,107
	10 mos.	9	878,901	.....	969,660	135,006	294,285	1,645	632,202	43,432	1,106,570	114.12	—36,910	—99,184	—110,531	193,664
Buffalo & Susquehanna R. R. Corp.	Oct.	296	326,445	6,269	335,927	34,171	116,996	2,672	103,539	10,487	267,864	79.74	68,063	52,288	98,035	88,450
	10 mos.	296	2,401,426	69,117	2,515,210	518,102	1,091,263	25,791	923,114	104,437	2,662,706	105.95	—147,496	—226,446	148,067	391,006
Buffalo, Rochester & Pittsburgh	Oct.	589	2,257,090	161,418	2,491,443	304,934	556,603	17,625	966,648	45,909	1,893,981	76.02	597,462	562,431	689,977	530,580
	10 mos.	589	15,219,408	-1,538,550	17,437,974	3,066,281	5,520,686	176,716	8,050,800	421,437	17,253,471	98.94	184,503	—146,182	1,380,839	1,967,845
Canadian Pacific (Lines in Maine)	Oct.	233	167,421	40,248	220,571	126,057	58,640	3,665	143,785	3,854	335,863	152.28	—115,293	—127,493	—134,960	—116,196
	10 mos.	233	1,691,946	494,567	2,312,338	689,858	582,148	31,396	1,469,224	35,651	2,808,139	121.44	—495,801	—617,801	—748,570	—322,083
Carolina, Clinchfield & Ohio	Oct.	291	723,983	52,210	789,395	102,350	181,707	22,296	232,315	21,977	560,327	70.98	229,068	189,015	274,308	89,252
	10 mos.	291	5,526,794	442,551	6,124,904	811,425	1,456,377	167,406	1,939,796	205,830	4,578,746	74.76	1,546,159	1,207,999	2,263,345	1,109,279
Central New England	Oct.	301	837,831	30,140	900,117	130,771	141,679	6,403	482,961	16,182	777,997	86.43	122,120	103,891	804	—114,109
	10 mos.	301	5,486,367	264,339	6,025,184	1,643,104	1,442,881	37,559	3,666,611	168,789	6,968,836	115.66	—943,652	—1,125,354	—2,197,471	—2,205,395
Central of Georgia	Oct.	1,924	1,468,850	578,551	2,246,462	402,472	524,948	66,564	1,064,941	85,823	2,149,345	95.67	97,117	9,008	33,241	—85,631
	10 mos.	1,924	13,110,960	5,632,119	21,135,713	4,101,787	4,940,730	511,916	10,121,895	796,315	20,518,586	97.08	617,127	—233,325	—274,954	—1,603,339
Central R. R. of New Jersey	Oct.	686	4,535,160	861,820	5,650,966	663,628	1,945,321	44,983	2,284,236	100,777	5,060,372	89.55	590,594	315,279	365,750	407,361
	10 mos.	686	30,440,901	8,292,517	41,836,692	6,332,827	14,236,626	336,666	21,820,609	1,051,158	44,044,451	105.28	—2,207,759	—4,912,552	—4,568,979	—6,468,133
Central Vermont	Oct.	413	545,796	125,867	725,475	140,017	180,645	11,534	437,639	22,049	793,858	109.43	—68,382	—96,833	—96,023	—5,542
	10 mos.	413	4,252,032	1,064,117	5,913,472	1,055,469	1,681,073	101,505	3,940,150	209,444	7,008,817	118.52	—1,095,345	—1,280,807	—1,435,871	—628,755
Charleston & Western Carolina	Oct.	342	225,308	57,321	300,329	80,711	66,896	6,035	185,982	8,116	347,740	115.79	—47,412	—59,048	—69,542	—72,821
	10 mos.	342	2,144,017	558,500	2,869,513	710,371	647,136	55,809	1,620,467	57,683	3,091,467	107.74	—221,954	—332,085	—484,059	—635,702
Chesapeake & Ohio	Oct.	2,520	8,532,915	1,076,357	10,075,590	1,233,820	2,308,696	55,560	3,530,371	164,381	7,331,208	72.76	2,744,382	2,554,300	2,572,000	2,126,341
	10 mos.	2,519	58,347,432	9,564,899	73,044,113	10,740,461	20,047,165	565,057	30,341,710	1,499,740	63,537,053	86.98	9,507,060	7,127,430	8,988,997	400,406
Chicago & Alton	Oct.	1,050	2,350,537	[9]625,463	3,112,401	514,689	694,023	54,431	1,320,281	64,843	2,644,689	84.97	467,711	407,725	391,775	301,293
	10 mos.	1,050	16,773,481	[9]5,739,594	24,675,202	3,971,825	6,614,148	385,407	11,360,213	634,873	23,073,364	93.51	1,601,837	946,925	—22,625	—209,182
Chicago & Eastern Illinois	Oct.	1,130	2,551,615	477,002	3,198,030	301,263	952,758	25,749	1,213,406	76,349	2,584,104	80 80	613,926	513,747	659,066	276,119
	10 mos.	1,131	17,843,514	4,456,320	24,893,897	3,385,177	8,130,034	260,455	10,859,296	848,281	23,616,682	92.86	1,277,215	304,163	1,643,133	2,003,106
Chic., Det. & Can. Grand Trunk Jct.	Oct.	62	104,446	14,987	148,795	18,106	27,052	1,856	90,478	4,995	142,459	95.74	6,336	1,739	—16,294	—104,930
	10 mos.	62	1,125,864	182,609	1,535,039	182,325	272,859	16,457	807,443	39,597	1,318,794	85.91	216,245	171,308	—40,843	—771,141
Chicago & North Western	Oct.	8,405	13,166,377	3,146,630	17,739,416	2,633,631	3,456,818	160,374	7,223,046	402,354	14,037,313	79.13	3,702,103	2,976,950	2,844,232	399,615
	10 mos.	8,405	91,287,330	31,208,133	136,952,506	23,788,735	31,711,972	1,162,242	65,394,808	3,452,410	126,726,987	92.53	10,225,519	3,294,165	1,318,941	—12,554,392

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1920—CONTINUED

Name of road.		Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals.	Increase (or decr.) comp. with last year.
			Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
Chicago, St. P., Minn. & Omaha	Oct.	1,749	2,305,796	681,607	3,184,708	378,960	592,079	46,691	1,368,475	92,417	2,491,336	78.23	693,372	550,503	517,952	112,966
	10 mos.	1,749	17,157,058	6,881,217	26,282,972	4,311,338	5,128,469	308,372	12,399,480	801,885	23,090,539	87.85	3,192,433	1,876,865	1,893,196	—394,478
Chicago, Burlington & Quincy	Oct.	9,370	14,336,790	3,307,253	18,919,313	2,641,350	3,995,996	178,880	7,495,009	454,930	14,953,191	79.04	3,966,122	3,237,074	2,855,769	—855,229
	10 mos.	9,371	165,717,408	30,295,643	151,668,275	27,152,168	33,357,269	1,391,313	66,667,948	4,132,907	134,342,119	88.58	17,326,157	10,456,028	7,049,095	—16,111,816
Cleve., Cinn., Chicago & St. Louis	Oct.	2,409	6,629,352	1,749,843	8,989,924	1,105,388	1,767,094	116,759	3,547,428	168,515	6,775,410	75.37	2,214,514	1,868,775	1,652,280	—400,804
	10 mos.	2,408	49,868,512	16,398,954	73,440,786	9,910,144	17,152,849	1,011,651	31,025,456	1,471,935	61,151,169	83.27	12,289,618	9,818,590	8,024,155	—4,245,635
Colorado & Southern	Oct.	1,099	1,405,821	276,622	1,780,122	189,826	250,214	12,699	580,787	55,177	1,099,266	61.75	680,856	620,676	648,419	578,389
	10 mos.	1,099	9,145,629	2,534,021	12,690,243	2,354,924	2,969,269	118,424	4,574,728	481,963	10,601,816	83.54	2,088,428	1,505,546	1,587,232	213,471
Ft. Worth & Denver City	Oct.	454	924,312	354,746	1,330,621	186,495	290,983	9,041	584,887	35,866	1,118,484	84.06	212,137	191,470	173,682	—86,066
	10 mos.	454	6,529,945	3,442,765	10,542,920	1,737,584	2,386,808	76,587	4,726,505	351,794	9,341,776	88.61	1,201,143	975,437	637,736	—1,897,627
Trinity & Brazos Valley	Oct.	368	258,147	35,033	303,672	62,127	71,777	2,191	104,203	9,967	250,265	82.41	53,407	45,434	45,478	102,707
	10 mos.	368	1,352,794	242,082	1,690,148	648,373	554,453	23,390	805,704	121,194	2,152,935	127.38	—462,787	—540,923	—595,666	14,581
Chicago Great Western	Oct.	1,496	1,756,115	496,186	2,426,958	523,735	485,349	54,263	949,839	68,388	2,100,709	86.56	326,249	244,379	158,110	—179,113
	10 mos.	1,496	13,074,024	4,737,537	19,799,261	5,031,607	5,366,856	389,383	9,330,966	576,188	20,880,044	105.46	—1,080,783	—1,794,854	—2,612,113	—3,925,848
Chicago, Indianapolis & Louisville	Oct.	654	1,213,779	316,226	1,643,681	198,203	362,198	39,851	739,561	39,449	1,397,710	85.04	245,972	197,302	78,134	56,311
	10 mos.	654	9,020,408	2,777,559	13,150,147	1,859,416	3,936,522	299,300	6,108,653	329,269	12,694,154	96.53	455,993	—26,568	—956,267	—1,580,600
Chicago Junction Ry	Oct.	12	.....	.....	387,194	15,687	34,785	181	458,121	10,320	519,094	134.07	—131,900	—135,115	—68,016	—123,919
	10 mos.	12	.....	.....	2,852,242	545,997	604,656	2,318	3,056,307	98,593	4,307,870	151.03	—1,455,628	—1,487,401	—1,309,820	—1,202,360
Chicago, Milwaukee & St. Paul	Oct.	10,611	13,144,005	2,602,266	17,499,474	2,500,443	3,564,180	151,339	7,633,586	463,501	14,403,431	82.31	3,096,043	2,415,662	2,113,473	25,001
	10 mos.	10,627	96,194,125	26,000,483	138,776,614	25,190,884	34,706,599	1,290,150	68,493,653	4,336,554	135,003,812	97.28	3,772,802	—2,863,292	—7,917,839	—12,044,145
Chicago, Peoria & St. Louis	Oct.	247	244,417	26,786	286,947	52,066	86,898	5,348	149,774	12,387	306,473	106.81	—19,525	—26,625	—22,335	—24,282
	10 mos.	247	1,845,555	275,787	2,273,328	418,084	765,592	44,831	1,206,107	116,948	2,551,492	112.24	—278,164	—347,180	—388,016	273,973
Chicago, Rock Island & Pacific	Oct.	7,662	9,440,168	2,994,356	13,199,481	2,151,728	2,870,447	153,383	5,553,990	284,863	11,085,492	83.99	2,113,989	1,646,182	1,464,740	—140,118
	10 mos.	7,637	74,692,781	28,448,425	112,620,287	21,522,492	28,562,914	1,372,118	51,232,724	2,640,632	105,700,842	93.86	6,919,445	2,439,465	333,205	—8,294,252
Chicago, Rock Island & Gulf	Oct.	461	527,546	122,496	683,753	76,848	146,577	11,363	304,683	16,106	557,030	81.47	126,723	114,026	125,671	—62,786
	10 mos.	461	3,958,404	1,094,525	5,482,459	863,863	944,031	95,106	2,380,722	146,249	4,442,566	81.03	1,039,893	889,137	890,484	359,617
Chic., Terre Haute & Southeastern	Oct.	374	675,688	26,789	716,932	85,895	229,018	6,028	274,182	12,436	611,418	85.28	105,514	86,014	120,960	53,707
	10 mos.	374	4,469,945	250,144	4,847,536	741,452	1,675,785	48,607	2,044,496	114,266	4,644,568	95.81	202,968	10,968	543,989	689,887
Cincinnati, Indianapolis & Western	Oct.	321	326,716	72,551	417,487	69,622	89,658	11,634	188,922	21,866	382,946	91.73	34,541	20,632	25,879	94,163
	10 mos.	321	2,794,166	612,796	3,699,178	679,100	1,240,205	92,906	1,789,807	196,963	4,010,527	108.42	—311,350	—444,137	—490,589	—34,963
Cincin., New Orleans & Tex. Pac.	Oct.	338	1,373,609	401,152	1,879,815	267,165	517,301	23,919	629,202	39,776	1,491,528	79.33	388,287	197,016	255,552	209,473
	10 mos.	338	12,511,572	3,491,780	17,211,270	1,935,267	4,364,810	263,063	6,240,103	390,778	13,307,290	77.32	3,903,980	3,167,098	3,778,241	2,997,799
Cincinnati Northern	Oct.	245	421,075	17,446	447,097	51,603	54,455	5,017	136,354	7,189	254,582	56.94	192,515	179,134	158,118	91,003
	10 mos.	248	2,711,779	204,164	3,044,450	550,674	638,025	38,567	1,132,494	64,342	2,424,044	79.62	620,405	509,788	377,994	—52,505
Copper Range	Oct.	142	93,353	8,616	116,711	21,440	15,847	1,876	40,147	2,470	81,780	70.07	34,930	24,309	25,408	31,464
	10 mos.	142	628,133	114,513	814,618	221,515	159,463	18,297	377,803	27,278	804,356	98.74	10,262	—58,628	—69,079	16,410
Colorado & Wyoming	Oct.	43	30,999	1,118	107,620	19,103	26,695	409	51,974	4,391	102,571	95.31	5,048	—16,230	—18,157	—28,292
	10 mos.	43	227,977	9,880	837,889	156,806	198,165	2,900	433,845	41,973	833,692	99.50	4,197	—170,999	—192,660	—188,206
Delaware & Hudson	Oct.	881	3,756,368	334,716	4,219,250	452,340	1,203,953	43,652	1,929,347	170,252	3,827,855	90.72	391,395	309,891	343,244	61,167
	10 mos.	881	30,553,335	3,176,530	35,734,659	4,101,788	10,198,867	308,302	17,411,744	1,315,973	33,806,900	94.61	1,927,759	1,120,148	896,860	—1,164,526
Delaware, Lackawanna & Western	Oct.	956	6,964,758	1,238,270	8,836,825	1,007,444	1,652,631	110,846	4,079,784	176,640	7,097,199	80.31	1,739,626	1,250,028	1,182,276	269,806
	10 mos.	956	45,941,259	11,260,110	64,840,464	8,669,655	15,124,534	835,115	32,502,621	1,546,902	59,541,581	92.97	5,298,883	1,304,869	1,419,825	—8,189,670
Denver & Rio Grande	Oct.	2,585	3,158,964	655,762	4,055,960	507,177	785,301	38,168	1,384,383	88,936	2,869,420	70.75	1,186,540	1,051,363	1,037,175	278,680
	10 mos.	2,585	23,202,237	6,388,553	32,090,330	5,087,255	7,631,198	387,743	11,668,629	829,762	26,267,627	81.86	5,822,703	4,504,630	4,928,074	90,503
Denver & Salt Lake	Oct.	255	304,262	34,619	349,649	46,184	64,576	1,017	145,289	8,335	265,401	75.91	84,248	79,237	70,856	119,456
	10 mos.	255	1,857,673	400,783	2,371,081	697,591	706,528	11,823	1,236,636	79,794	2,732,373	115.29	—361,292	—449,744	—514,894	209,683
Detroit & Mackinac	Oct.	376	202,332	32,956	247,274	42,888	54,026	2,670	109,064	7,293	215,630	87.20	31,644	22,254	35,182	—8,434
	10 mos.	376	1,219,815	362,382	1,723,349	319,821	458,080	27,712	852,590	77,184	1,734,128	100.63	—10,779	—135,192	—27,313	41,476
Detroit, Grand Haven & Milwaukee	Oct.	195	318,959	73,600	440,541	102,103	76,824	6,212	270,482	17,040	473,385	107.46	—32,844	—35,933	—89,966	—248,758
	10 mos.	195	3,036,071	495,413	4,004,149	731,473	832,064	62,037	2,483,293	137,594	4,250,115	106.14	—245,965	—278,619	—892,773	—1,593,353
Detroit & Toledo Shore Line	Oct.	62	210,496	.....	214,028	45,222	25,073	2,644	72,264	5,128	150,332	70.24	63,696	53,696	32,185	—17,896
	10 mos.	62	1,576,075	.....	1,589,482	236,653	193,150	19,450	541,573	45,646	1,036,471	65.21	553,013	440,651	114,346	—731,132
Detroit, Toledo & Ironton	Oct.	456	553,408	18,658	598,054	269,846	145,447	7,766	271,726	20,701	715,484	119.64	—117,431	—126,491	—156,284	—162,127
	10 mos.	454	3,810,026	158,433	4,230,907	1,494,534	1,001,301	66,606	2,221,157	211,971	4,993,401	118.02	—762,493	—853,654	—1,090,925	—617,535
Duluth & Iron Range	Oct.	298	1,291,347	25,736	1,414,918	127,131	140,202	1,629	348,539	22,776	641,095	45.31	773,823	701,300	707,141	561,971
	10 mos.	298	9,075,881	238,422	10,065,045	1,243,542	1,244,677	10,868	2,543,774	194,390	5,244,098	52.10	4,820,947	4,300,095	4,423,972	1,199,894
Duluth, Missabe & Northern	Oct.	406	2,524,193	52,407	2,819,901	286,502	179,498	3,327	551,245	33,202	1,056,371	37.46	1,763,530	1,619,414	1,613,936	283,782
	10 mos.	406	15,760,466	512,372	17,813,621	2,219,350	1,673,729	30,088	3,778,384	233,130	7,953,644	44.65	9,859,977	8,931,224	8,939,414	—2,621,011
Duluth, South Shore & Atlantic	Oct.	613	493,143	115,520	647,873	99,904	101,021	5,717	286,163	12,437	512,470	79.10	135,403	110,403	87,709	69,885
	10 mos.	613	3,254,455	1,106,700	4,850,898	1,007,730	851,537	52,921	2,344,350	117,842	4,490,017	92.56	360,881	119,621	—73,273	—157,132
Duluth, Winnipeg & Pacific	Oct.	178	233,453	30,626	269,609	67,411	56,862	4,209	121,277	9,414	259,173	96.13	10,437	—5,011	—5,698	9,117
	10 mos.	178	1,702,664	284,123	2,033,012	394,729	413,398	36,573	970,683	87,413	1,902,797	93.60	130,215	20,854	41,038	28,804
East St. Louis Connecting Ry	Oct.	3	.....	.....	157,832	17,598	5,276	314	87,448	3,980	114,617	72.62	43,215	40,351	29,479	69,681
	10 mos.	3	.....	.....	1,202,569	153,360	292,310	3,042	907,901	39,547	1,396,160	116.10	—193,591	—217,712	—352,031	95,837
El Paso & Southwestern Co	Oct.	1,027	1,090,740	216,336	1,399,750	217,414	229,901	28,721	338,952	47,933	872,582	62.34	527,168	426,702	450,571	250,660
	10 mos.	1,027	8,995,803	2,143,569	11,949,887	2,577,050	2,384,066	185,918	3,353,222	432,096	9,024,148	75.52	2,925,739	2,001,239	2,026,679	—562,250
Elgin, Joliet & Eastern	Oct.	836	2,571,341	12	2,809,344	280,190	495,371	14,391	901,948	44,173	1,734,597	61.74	1,074,747	1,010,282	804,784	1,097,908
	10 mos.	833	17.898.397	104	20.279.449	2.211.619	4.629.346	85.682	8.197.263	378.162	15.492.666	76.40	4.786.783	4.269.169	2.308.474	—414.256

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1920—CONTINUED

Name of road.		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals.	Increase (or decr.) comp. with last year.
Erie	Oct.	1,989	9,484,647	1,344,563	11,579,587	1,334,725	3,188,627	133,641	5,749,836	337,837	10,801,217	93.28	778,371	429,042	282,059	—172,479
	10 mos	1,989	67,351,921	11,859,493	87,664,562	13,346,030	30,203,786	1,039,881	47,756,040	2,708,328	95,744,950	109.22	—8,080,388	—10,684,276	—9,776,032	—10,051,318
Chicago & Erie	Oct.	269	1,336,315	98,785	1,499,825	200,842	194,631	21,327	635,349	42,438	1,091,801	72.80	408,024	372,675	—15,822	—174,754
	10 mos.	269	8,805,283	796,719	10,490,954	1,309,918	1,808,537	159,145	5,455,640	351,229	9,108,364	86.82	1,382,590	984,393	—2,014,397	—2,455,116
Florida East Coast	Oct.	764	732,072	267,264	1,078,117	229,492	215,115	7,540	438,026	26,416	926,531	85.94	151,586	100,988	61,765	—95,324
	10 mos.	764	6,252,172	3,202,179	10,959,369	1,650,135	1,959,277	87,530	4,297,026	264,729	8,380,207	76.47	2,579,162	2,109,968	1,748,563	725,857
Fonda, Johnstown & Gloversville	Oct.	89	44,346	74,035	123,050	18,464	11,740	603	50,217	6,618	87,643	71.23	35,408	30,333	28,004	5,289
	10 mos.	89	406,564	734,444	1,192,659	138,741	115,516	5,432	442,725	57,196	759,611	63.69	433,049	382,649	345,061	26,313
Fort Smith & Western	Oct.	253	196,118	839,340	252,573	36,873	49,737	5,030	93,846	8,509	195,455	77.39	57,118	51,892	53,256	—8,158
	10 mos.	253	1,145,365	340,405	1,600,973	348,355	376,431	44,992	652,474	77,671	1,512,469	94.47	88,504	37,674	68,749	—128,476
[1]Galveston Wharf Co	Oct.	13	.....	.....	256,604	50,570	10,365	664	57,476	2,802	152,227	59.32	104,377	90,377	90,320	102,823
	10 mos.	13	.....	.....	1,484,109	465,416	49,637	4,629	421,430	25,269	1,204,526	81.16	279,583	113,000	122,522	215,468
Georgia	Oct.	328	454,040	166,570	662,870	94,834	103,265	18,713	311,533	20,988	549,448	82.89	113,422	107,471	104,935	—139,958
	10 mos.	328	3,629,634	1,490,377	5,535,073	885,813	1,176,191	149,695	3,019,564	200,202	5,433,515	98.17	101,558	42,036	—42,963	—1,174,984
Georgia & Florida	Oct.	405	119,048	32,181	162,906	41,406	28,127	7,667	92,064	9,325	178,589	109.63	—15,683	—22,128	—28,969	20,640
	10 mos.	405	865,128	272,874	1,251,064	611,105	267,924	58,704	872,901	90,502	1,901,135	151.96	—650,073	—714,200	—759,973	—431,925
Georgia Southern & Florida	Oct.	402	306,854	139,082	486,890	93,235	134,817	10,175	287,683	13,505	542,022	111.32	—55,132	—77,229	—94,639	—70,033
	10 mos.	402	2,694,844	1,259,285	4,404,868	730,378	1,063,078	78,486	2,320,253	125,381	4,343,727	98.61	61,141	—135,367	—119,242	—167,117
Grand Trunk Western	Oct.	350	1,358,679	260,433	1,727,068	263,097	328,946	22,091	681,033	57,458	1,368,938	79.26	358,130	307,018	108,444	—163,016
	10 mos.	350	10,955,673	2,340,468	14,358,204	2,060,379	3,509,718	210,417	6,509,822	467,083	12,850,499	89.50	1,507,704	1,018,788	—1,141,581	—3,024,671
Grand Trunk Ry. of Canada	Oct.	166	256,697	53,756	333,340	111,243	77,554	2,910	175,920	14,663	382,331	114.70	—48,991	—66,714	—122,155	51,446
	10 mos.	166	1,869,031	434,224	2,485,580	782,264	675,508	29,100	1,649,485	131,501	3,276,368	131.82	—790,788	—954,916	—1,422,267	—759,761
Great Northern	Oct.	8,171	10,390,977	1,841,475	13,261,977	1,758,713	2,685,034	116,854	5,164,555	258,943	10,093,799	76.11	3,168,179	2,204,063	2,370,448	—788,473
	10 mos.	8,174	72,200,898	17,107,730	102,049,090	22,533,118	21,400,158	965,346	43,701,103	2,308,160	92,281,121	90.43	9,767,970	1,523,477	3,702,525	—9,540,581
Green Bay & Western	Oct.	252	107,481	15,899	132,208	23,517	25,023	1,453	50,279	2,839	102,920	77.85	29,288	22,260	21,689	—2,200
	10 mos.	252	788,622	180,548	1,050,083	218,023	252,771	13,632	454,646	28,949	967,243	92.11	82,840	13,155	22,387	—13,949
Gulf & Ship Island	Oct.	307	248,962	54,490	326,073	56,662	47,193	7,187	120,359	14,592	246,421	75.58	79,652	56,520	61,073	73,336
	10 mos.	307	1,787,870	519,263	2,525,125	729,690	612,541	62,565	1,075,030	134,553	2,618,920	103.71	—93,795	—293,909	—210,810	—156,907
Gulf Coast Lines	Oct.	920	1,004,140	290,456	1,354,011	216,514	210,239	27,921	371,769	44,222	869,561	64.22	484,450	455,672	.....	.....
	10 mos.	920	7,429,352	2,715,550	10,770,910	2,576,478	1,897,888	226,202	3,698,897	416,458	8,806,086	81.76	1,964,824	1,686,673	.....	.....
Gulf, Colorado & Santa Fe	Oct.	1,907	2,146,589	664,741	2,968,630	689,280	607,854	37,843	1,122,714	61,439	2,515,110	84.72	453,520	366,158	364,969	—60,745
	10 mos.	1,913	14,875,593	5,398,998	21,927,618	6,168,130	4,876,479	284,625	10,256,923	580,556	22,130,217	100.92	—202,599	—1,072,487	—1,651,547	—3,160,716
Gulf, Mobile & Northern	Oct.	470	383,743	61,653	463,684	94,838	103,689	12,400	219,302	19,536	449,765	97.00	13,919	—714	—28,546	—40,583
	10 mos.	470	2,471,392	589,321	3,279,460	1,230,660	876,466	106,056	1,577,289	162,441	3,952,913	120.54	—673,452	—810,758	—852,971	—794,971
Hocking Valley	Oct.	350	1,847,298	124,856	2,131,704	218,375	750,334	8,099	678,492	45,295	1,700,340	79.77	431,364	292,499	386,219	163,986
	10 mos.	350	11,658,870	1,110,770	13,702,048	1,716,871	4,991,080	96,496	5,292,347	370,898	12,466,913	90.99	1,235,135	477,305	1,453,946	—202,201
Illinois Central	Oct.	4,799	11,512,454	2,302,352	14,671,030	2,273,700	3,486,116	123,427	5,968,805	322,714	12,257,274	83.55	2,413,755	1,713,753	1,713,526	729,297
	10 mos.	4,799	86,245,591	22,238,538	118,706,596	22,517,809	31,313,021	1,066,753	52,584,461	2,756,492	111,136,612	93.62	7,569,983	1,230,213	4,437,161	—286,236
Yazoo & Mississippi Valley	Oct.	1,381	1,417,957	505,373	2,042,010	424,039	267,878	30,974	997,602	74,293	1,800,124	88.15	241,886	150,060	340,578	—113,159
	10 mos.	1,381	17,527,896	4,916,280	23,834,664	5,569,821	5,583,487	265,493	9,879,766	638,781	21,984,600	92.24	1,850,064	963,900	—726,056	—4,749,809
[1]Illinois Terminal	Oct.	24	109,238	.....	115,080	10,430	8,991	829	26,884	5,867	53,001	46.06	62,079	60,962	58,691	—2,520
	10 mos.	24	843,951	.....	887,433	56,887	98,881	-7,884	221,818	52,156	437,626	49.31	449,807	438,465	398,353	—32,481
[1]Indiana Harbor Belt	Oct.	120	.....	.....	1,126,767	121,423	286,397	2,830	557,332	26,655	993,689	88.19	133,378	122,378	344,341	505,416
	10 mos.	120	.....	.....	7,480,658	1,135,418	2,559,605	27,773	5,371,973	223,047	9,317,814	124.56	—1,837,155	—1,944,314	—3,400,272	—2,693,160
International & Great Northern	Oct.	1,159	1,892,025	419,022	2,442,224	371,926	378,080	23,621	945,897	51,334	1,784,811	73.08	657,413	626,640	511,356	734,584
	10 mos.	1,159	11,320,650	3,081,744	15,727,190	3,175,088	3,881,147	208,945	8,083,230	504,402	15,922,940	101.25	—165,749	—475,676	—1,146,794	118,859
International Railway of Maine	Oct.	233	167,421	40,248	220,571	126,057	58,640	3,665	143,785	3,854	335,863	152.27	—115,293	—127,493	—134,960	—116,196
	10 mos.	233	1,691,946	494,567	2,312,338	689,858	582,148	31,396	1,469,224	35,651	2,808,139	121.59	—495,801	—617,801	—748,570	—322,083
Kanawha & Michigan	Oct.	176	503,240	59,454	577,428	96,310	181,746	4,881	188,766	15,854	487,558	84.44	89,870	56,037	172,846	93,365
	10 mos	176	3,597,884	550,044	4,325,116	869,580	1,627,087	34,933	1,696,422	140,846	4,363,868	101.01	—43,752	—353,629	433,916	221,902
Kansas City, Mexico & Orient	Oct.	272	150,393	17,879	178,849	49,644	55,208	4,349	77,529	27,766	214,496	119.93	—35,647	—43,347	—41,066	18,305
	10 mos.	272	1,093,594	190,562	1,378,071	491,388	499,646	38,925	820,972	141,109	1,992,040	144.55	—613,968	—691,032	—694,535	—204,247
Kan. City, Mexico & Orient of Tex.	Oct.	465	186,319	27,920	221,945	22,990	27,649	4,672	83,524	6,562	145,397	65.51	76,548	70,298	66,404	115,402
	10 mos.	465	1,214,653	238,308	1,558,629	701,961	452,628	39,027	917,112	85,249	2,195,977	140.89	—637,348	—701,020	—699,183	—96,274
Kansas City Southern	Oct.	779	1,741,510	250,899	2,126,779	223,759	366,448	34,661	837,929	71,561	1,532,104	72.04	594,675	521,252	495,337	113,899
	10 mos.	779	12,431,107	2,498,606	16,190,923	2,268,234	3,352,017	339,910	6,724,265	647,243	13,322,150	82.28	2,868,773	2,176,409	1,775,641	427,507
[1]Kansas City Terminal	Oct.	27	.....	.....	165,345	28,828	29,940	.....	75,296	2,549	138,655	83.86	26,690	—3,310	263,881	77,808
	10 mos.	27	.....	.....	1,327,192	244,968	329,645	.....	755,239	28,293	1,381,603	104.10	—54,411	—337,489	1,778,654	—233,989
Kansas, Oklahoma & Gulf	Oct.	329	270,954	31,499	313,895	73,683	69,761	3,859	128,065	10,794	286,338	91.22	27,557	19,555	11,921	64,952
	10 mos.	329	1,808,550	252,780	2,168,012	525,713	576,381	25,875	1,093,236	96,102	2,319,236	106.98	—151,224	—252,981	—332,990	411,251
Lake Erie & Western	Oct.	738	1,011,740	64,541	1,134,864	143,191	343,807	17,455	467,908	30,502	1,000,578	88.17	134,286	90,548	60,055	—141,911
	10 mos.	738	8,383,623	678,156	9,612,857	1,301,397	3,269,343	157,623	4,275,253	274,361	9,270,947	96.44	341,910	—67,473	—228,711	—392,655
Lake Superior & Ishpeming	Oct.	34	181,491	69	204,543	24,156	19,481	196	53,661	3,037	100,530	49.15	104,013	99,079	102,403	65,228
	10 mos.	34	1,347,082	2,239	1,520,067	209,460	184,966	2,284	359,875	29,245	785,829	51.70	734,238	685,422	700,514	390,530
Lake Terminal	Oct.	12	.....	160	150,373	20,506	23,559	.....	97,145	105	141,315	93.98	9,058	2,121	—6,559	14,630
	10 mos.	12	.....	2,012	1,141,835	177,585	255,625	.....	823,701	846	1,257,757	110.15	—115,922	—176,498	—252,818	—119,195
Lehigh & Hudson River	Oct.	96	351,878	3,936	364,534	41,966	55,511	2,020	176,523	7,908	283,928	77.89	80,605	72,005	40,968	—31,070
	10 mos.	96	2,326,499	40,752	2,460,422	317,190	488,579	18,685	1,344,846	79,182	2,248,482	91.39	211,940	125,560	—122,566	—429,807

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1920—CONTINUED

Name of road.		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals.	Increase (or decr.) comp. with last year.
Lehigh & New England	Oct.	229	546,322	1,920	566,423	99,515	81,470	3,486	177,100	15,858	377,429	66.63	188,994	173,541	187,281	42,070
	10 mos.	229	3,627,165	19,930	3,796,112	677,849	816,355	55,594	1,459,872	137,788	3,145,166	82.85	650,946	508,202	687,161	—38,576
Lehigh Valley	Oct.	1,435	7,422,992	671,372	8,486,513	985,542	2,026,367	83,656	3,675,684	174,788	6,976,081	82.20	1,510,433	1,287,044	1,311,598	782,060
	10 mos.	1,435	49,114,550	6,456,871	60,203,480	10,357,350	18,341,825	708,846	33,734,089	1,379,834	64,799,670	107.63	—4,596,190	—6,635,266	—6,271,208	—9,563,246
Long Island	Oct.	398	845,305	1,263,622	2,325,877	253,015	532,641	26,053	1,337,614	65,966	2,236,752	96.17	89,125	—17,229	—59,265	46,669
	10 mos.	398	5,847,405	13,745,924	21,805,205	3,227,354	4,507,207	182,994	12,127,976	597,376	20,808,709	95.43	996,496	—42,323	—380,031	—3,254,827
Los Angeles & Salt Lake	Oct.	1,168	1,341,045	429,949	1,930,409	222,856	420,777	42,373	686,850	41,381	1,478,465	76.59	451,944	312,097	275,160	—132,502
	10 mos.	1,168	10,510,183	4,809,117	16,871,749	2,256,294	3,279,363	301,105	6,080,031	384,250	12,864,520	76.25	4,007,229	3,109,168	2,950,361	480,886
Louisiana & Arkansas	Oct.	302	344,581	45,917	401,292	108,138	59,384	4,585	147,635	8,867	328,607	81.89	72,685	58,596	51,695	94,124
	10 mos.	302	2,823,901	499,735	3,464,236	797,786	508,472	47,839	1,213,396	86,257	2,653,358	76.59	810,879	639,027	572,884	792,497
Louisiana Ry. & Nav.	Oct.	344	394,948	41,614	459,170	104,876	71,020	9,257	210,306	12,855	408,315	88.92	50,857	34,857	—2,411	—27,935
	10 mos.	344	2,861,957	432,056	3,506,564	852,497	571,991	67,366	1,587,239	114,601	3,193,694	91.08	312,870	170,748	—34,417	53,480
Louisville & Nashville	Oct.	5,040	8,629,375	2,431,783	11,592,765	1,922,215	2,963,762	181,733	5,267,969	282,910	10,671,120	92.05	921,645	618,998	603,645	—1,171,444
	10 mos.	5,040	74,075,207	22,010,051	103,636,598	19,092,838	28,556,297	1,697,809	48,083,740	2,495,576	100,430,632	96.91	3,205,966	233,324	1,993,836	—7,224,647
Louisville, Henderson & St. Louis	Oct.	199	212,718	71,383	300,356	61,795	39,455	5,853	120,709	8,999	236,811	78.84	63,545	56,262	35,974	—41,855
	10 mos.	199	1,763,043	641,236	2,598,202	644,012	369,352	55,389	962,113	89,326	2,120,191	81.60	478,011	433,308	327,152	—102,804
Maine Central	Oct.	1,216	1,632,248	486,283	2,239,932	338,073	392,745	14,602	1,128,959	55,125	1,932,458	86.27	307,474	211,326	196,539	315,704
	10 mos.	1,216	11,329,117	4,510,999	17,220,615	3,297,347	4,068,283	139,264	10,270,431	488,214	18,302,238	106.28	—1,081,623	—2,020,730	—2,154,250	—1,043,342
Maryland, Delaware & Virginia	Oct.	82	93,199	33,644	128,533	11,060	11,554	914	76,777	3,167	103,473	80.50	25,060	25,060	21,614	18,682
	10 mos.	82	671,210	396,323	1,115,849	108,663	374,782	9,434	770,763	27,524	1,291,167	115.71	—175,318	—191,372	—226,467	189,322
Michigan Central	Oct.	1,862	6,563,074	1,845,666	9,106,911	1,166,804	2,054,171	68,323	3,293,860	149,129	6,802,373	74.70	2,304,538	2,089,940	1,827,557	—395,693
	10 mos.	1,862	46,166,756	18,816,922	72,691,227	10,286,522	19,096,710	800,791	31,312,739	1,401,112	63,980,455	88.02	8,710,772	6,508,783	3,903,647	—10,772,665
Midland Valley	Oct.	388	373,205	122,639	511,966	90,643	56,706	3,893	172,644	15,731	339,618	66.34	172,348	165,164	156,366	150,255
	10 mos.	388	2,842,035	1,038,517	4,061,555	1,006,366	710,116	35,742	1,525,299	171,129	3,448,652	84.91	612,903	540,635	506,261	124,908
Minneapolis & St. Louis	Oct	1,647	1,564,816	205,840	1,790,976	280,620	373,578	23,238	804,168	45,180	1,525,890	85.20	265,086	197,538	203,112	43,861
	10 mos.	1,647	10,724,923	2,252,034	13,873,352	2,819,969	3,566,415	199,765	7,354,291	405,617	14,346,452	103.41	—473,101	—1,070,501	—988,721	—1,174,567
Mineral Range	Oct.	101	66,561	273	70,364	13,938	25,999	358	37,451	1,373	79,119	112.44	—8,755	—13,055	—558	44
	10 mos.	101	541,418	2,988	566,940	160,980	206,852	3,062	330,811	12,124	713,830	125.91	—146,889	—186,012	—113,157	—40,316
Minneapolis, St. Paul & S. S. Marie	Oct.	4,243	4,251,256	793,606	5,382,989	894,357	1,039,842	50,467	2,269,009	109,540	4,392,048	81.59	990,941	707,083	729,029	5,121
	10 mos.	4,243	28,150,581	7,564,261	39,357,892	7,626,650	8,034,100	419,583	17,910,799	1,024,558	35,324,196	89.75	4,033,695	1,189,327	1,193,191	—2,995,956
Minnesota & International	Oct.	194	63,409	31,955	109,466	22,646	20,892	643	59,231	4,540	107,951	98.62	1,515	—5,020	—10,031	3,124
	10 mos.	194	673,667	306,416	1,060,376	281,058	205,179	5,888	538,863	39,991	1,070,976	101.00	—10,600	—67,189	—179,316	—119,570
Mississippi Central	Oct.	164	88,967	26,257	126,984	19,925	34,350	2,593	47,677	8,439	112,985	88.98	13,999	8,884	16,917	—4,264
	10 mos.	164	608,324	228,838	904,147	364,578	333,692	24,409	440,341	86,337	1,249,359	138.18	—345,211	—390,544	—273,351	—191,630
Missouri & North Arkansas	Oct.	364	148,419	54,744	220,006	44,193	34,397	3,799	88,144	8,722	179,254	81.48	40,753	36,388	26,437	30,121
	10 mos.	364	1,062,789	492,971	1,708,545	601,689	369,228	34,718	772,983	86,544	1,864,441	109.13	—155,896	—203,328	—269,896	271,154
Missouri, Kansas & Texas	Oct.	1,715	2,866,710	810,521	3,970,639	572,803	939,238	39,730	1,401,960	107,641	3,077,469	77.51	893,170	209,978	927,270	383,635
	10 mos.	1,715	22,705,407	7,371,924	32,951,582	6,205,477	9,024,911	389,492	11,903,002	1,126,771	28,815,979	87.45	4,135,603	2,940,217	4,502,493	530,468
Missouri, Kansas & Texas of Tex.	Oct.	1,739	2,113,749	943,006	3,267,816	571,077	479,997	43,148	1,318,711	92,465	2,525,060	77.27	742,756	699,299	403,480	805,252
	10 mos.	1,751	13,909,775	7,779,729	23,888,481	6,399,551	4,753,850	339,284	12,492,604	909,766	25,119,605	105.15	—1,231,124	—1,780,446	—4,662,529	—3,844,758
Wichita Falls & Northwestern	Oct.	328	164,639	52,596	232,125	54,943	38,345	1,054	107,605	6,647	208,594	89.86	23,531	11,698	—22,833	8,671
	10 mos.	328	1,551,100	508,590	2,209,956	628,501	326,571	10,916	1,139,959	109,866	2,215,697	100.26	—5,741	—118,662	—383,637	—171,963
Missouri Pacific	Oct.	7,300	9,035,070	1,928,027	11,715,986	2,103,162	2,417,807	165,749	4,758,100	280,080	9,755,431	83.27	1,960,555	1,604,799	1,322,681	725,187
	10 mos.	7,299	68,794,469	18,141,679	95,660,483	21,468,766	24,361,817	1,479,876	42,067,742	2,664,686	92,523,194	96.72	3,137,290	—538,393	—4,298,167	—9,171,160
Mobile & Ohio	Oct.	1,165	1,514,092	214,905	1,826,051	257,510	529,272	45,206	845,599	53,567	1,732,255	94.86	93,796	41,506	121,306	78,193
	10 mos.	1,120	12,275,052	2,005,540	15,392,092	3,162,729	4,909,373	340,682	7,502,346	504,386	16,429,623	106.74	—1,037,531	—1,622,709	—1,029,745	—115,983
Monongahela Connecting	Oct.	7	.....	.....	272,967	28,561	40,343	561	143,595	7,321	220,381	80.74	52,586	46,058	45,329	37,686
	10 mos.	7	.....	.....	2,603,617	293,339	379,775	5,641	1,287,634	65,793	2,032,182	78.05	571,435	424,871	364,330	517,285
Monongahela	Oct.	106	500,040	36,146	545,894	112,853	57,399	1,481	156,358	8,551	336,642	61.67	209,252	202,959	127,149	6,006
	10 mos.	107	3,096,754	280,527	3,460,398	1,172,022	588,363	10,227	1,252,151	80,322	3,103,086	89.67	357,312	296,968	—325,587	—1,249,689
Montour	Oct.	56	218,236	1,254	224,392	61,348	79,495	981	49,297	7,418	198,574	88.50	25,818	23,207	61,816	10,245
	10 mos.	56	1,258,786	12,556	1,308,530	328,847	547,644	11,398	402,033	73,268	1,380,337	105.49	—71,806	—96,452	275,188	79,957
Nashville, Chattanooga & St. Louis	Oct.	1,247	1,657,959	519,868	2,307,003	478,265	631,873	63,974	1,059,999	60,481	2,297,779	99.60	9,223	—46,101	33,478	—156,001
	10 mos.	1,247	14,075,761	4,614,330	20,415,596	4,305,258	5,526,492	573,382	9,312,734	562,696	20,346,541	99.66	69,056	—402,471	62,502	—717,367
Nevada Northern	Oct.	165	61,574	10,902	78,867	24,618	10,297	783	23,818	3,894	63,410	80.40	15,457	5,292	7,858	—27,168
	10 mos.	165	1,264,192	103,939	1,430,476	290,174	236,469	8,561	376,235	47,869	960,216	67 13	470,260	368,898	346,945	151,539
New Jersey & New York	Oct.	47	26,649	101,744	133,253	13,058	20,080	3,091	83,347	3,190	122,766	92.13	10,487	6,143	—10,247	—3,046
	10 mos.	47	149,735	881,109	1,102,336	124,213	185,197	16,487	684,550	26,374	1,036,816	94.06	65,520	41,945	—181,208	—85,803
New Orleans & Northeastern	Oct.	207	437,533	115,539	618,663	143,553	160,109	10,088	250,912	19,089	590,960	95.62	27,103	—14,516	13,228	—6,025
	10 mos.	207	4,611,010	1,094,525	6,390,299	1,055,964	1,287,035	107,473	2,650,020	179,161	5,331,001	83.42	1,059,299	647,104	678,745	416,086
New Orleans Great Northern	Oct.	284	200,278	55,980	266,218	42,348	55,514	4,234	123,376	10,988	236,898	88.99	29,320	16,846	21,281	22,224
	10 mos.	284	1,611,840	521,306	2,233,282	529,762	495,474	45,640	965,658	104,361	2,145,530	96.07	87,752	—32,395	67,899	16,375
New York Central	Oct.	6,069	26,082,351	8,677,404	38,219,522	4,504,880	8,415,168	374,683	16,509,807	864,066	31,138,064	81.47	7,081,458	6,067,081	5,562,022	61,507
	10 mos.	6,069	179,701,830	80,759,496	302,245,348	44,685,927	81,984,433	2,962,049	146,402,677	7,853,190	288,643,375	95.50	13,601,974	3,063,966	814,922	—405,574,943
New York, Chicago & St. Louis	Oct.	575	2,277,375	122,622	2,492,530	280,243	537,311	58,651	1,064,380	76,672	2,023,256	81.17	469,273	334,273	295,263	62,348
	10 mos.	574	21,073,461	1,084,231	22,979,250	2,740,170	4,150,611	459,630	9,814,523	704,709	17,927,512	78.02	5,051,738	4,175,103	4,024,903	335,527
New York, New Haven & Hartford	Oct.	2,002	6,534,908	4,793,910	12,407,605	1,694,575	2,392,654	59,215	6,609,433	360,368	11,313,357	91.19	1,094,248	659,453	140,747	—1,116,608
	10 mos.	1,982	46,451,384	43,067,174	103,107,732	17,255,326	24,716,018	569,938	55,073,567	3,562,959	103,106,029	99.99	—1,702	—3,811,440	—9,095,852	—14,714,785
New York, Ontario & Western	Oct.	569	859,990	131,433	1,145,641	113,924	349,184	13,037	536,469	28,989	1,041,602	90.92	104,039	68,539	82,333	—123,724
	10 mos.	569	6,164,809	2,802,176	10,589,315	1,949,395	2,762,131	115,566	5,197,393	277,400	10,301,886	97.29	287,429	—36,557	—119,216	1,156,491
New York, Susquehanna & Western	Oct.	135	364,596	68,185	490,830	75,442	64,029	6,230	276,923	12,353	434,865	88.60	55,965	16,167	9,743	26,345
	10 mos.	135	2,642,104	650,303	3,741,636	631,792	779,486	33,745	2,720,171	105,786	4,271,463	114.16	—529,827	—762,273	—736,633	—643,126
Newburgh & South Shore	Oct.	7	.....	.....	211,149	18,013	35,389	.....	113,070	4,302	170,774	80.88	40,375	29,863	11,668	66,480
	10 mos.	7	.....	.....	1,469,561	167,892	333,216	.....	939,347	44,424	1,484,879	101.04	—15,319	—103,178	—264,611	122,702

...Oct.	7	.....	.....	211,149	18,013	35,389	.....	113,070	4,302	170,774	80.88	40,375	29,863	11,668	66,480	
10 mos.	7	.....	.....	1,469,561	167,892	333,216	.....	939,347	44,424	1,484,879	101.04	—15,319	—103,178	—264,611	122,702	

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1920—CONTINUED

Name of road.		Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Maintenance of: Way and structures.	Equipment.	Operating expenses: Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals.	Increase (or decr.) comp. with last year.
Norfolk & Western	Oct.	2,198	8,044,206	[1]986,113	9,336,496	1,183,140	2,728,984	67,107	3,743,761	171,537	7,901,262	84.38	1,435,234	1,085,119	1,474,131	317,468
	10 mos.	2,200	57,000,447	[8]8,345,875	69,019,932	10,914,849	24,360,583	612,556	31,052,344	1,540,664	68,663,231	99.48	356,701	—3,466,209	107,396	—9,169,836
Norfolk Southern	Oct.	944	486,919	169,295	699,722	81,189	130,315	20,677	373,317	32,835	638,691	91.27	61,031	35,021	39,146	—79,646
	10 mos.	924	4,362,217	1,703,007	6,544,357	1,498,962	1,392,910	154,096	3,488,963	306,819	6,844,018	104.58	—299,662	—499,814	—588,311	—660,719
Northern Alabama	Oct.	110	121,342	18,940	145,030	41,952	9,524	1,953	69,207	3,670	126,306	87.09	18,724	13,361	—5,229	—5,661
	10 mos.	110	1,037,010	157,170	1,250,123	321,969	76,095	16,488	597,275	29,614	1,041,442	83.31	208,680	163,550	—75,479	—117,345
Northern Pacific	Oct.	6,655	9,375,374	1,850,581	12,032,973	1,769,043	2,287,378	125,195	4,416,658	280,510	8,994,636	74.75	3,038,338	2,299,466	2,783,187	222,668
	10 mos.	6,652	64,671,918	17,950,311	91,649,489	18,607,071	18,699,075	880,443	37,352,304	2,435,032	79,270,431	86.49	12,379,058	4,677,327	8,357,006	—6,574,654
Northwestern Pacific	Oct.	536	481,669	239,402	808,854	165,499	142,197	8,969	327,145	17,027	666,250	82.99	136,604	106,029	93,500	—82,149
	10 mos.	537	3,550,725	2,387,472	6,722,211	1,254,392	871,482	62,904	2,809,341	159,299	5,186,447	77.15	1,535,764	1,252,910	1,139,005	124,402
Pennsylvania R. R.	Oct.	7,259	45,233,762	18,326,254	60,603,431	7,771,321	15,869,650	491,246	27,591,684	1,299,049	54,046,038	89.18	6,557,393	4,853,690	3,978,622	928,020
	10 mos.	7,259	304,947,355	110,436,666	456,155,874	78,521,712	146,791,115	4,105,994	239,125,780	11,830,719	488,635,665	107.12	—32,479,791	—48,215,951	—52,633,666	—77,708,400
Grand Rapids & Indiana	Oct.	569	751,440	187,515	981,489	110,041	238,687	16,413	460,315	30,092	855,562	87.17	125,927	95,672	83,932	—40,742
	10 mos.	569	5,064,371	2,102,291	7,881,008	1,060,465	2,011,114	138,702	4,399,487	303,149	7,942,421	106.77	—61,413	—383,694	—475,879	964,775
New York, Philadelphia & Norfolk.	Oct.	121	594,188	108,400	741,306	79,831	188,634	9,402	383,676	19,265	700,202	94.46	41,104	10,433	—1,116	—78,894
	10 mos.	121	5,059,275	1,069,842	6,693,888	704,161	1,899,551	98,569	4,063,689	156,998	7,031,468	105.04	—337,579	—645,754	—776,282	—1,510,353
Pittsburgh, Cin., Chi. & St. L.	Oct.	2,383	8,679,689	2,263,743	11,636,306	1,514,871	3,186,686	103,517	5,147,915	270,451	10,386,312	89.26	1,249,994	929,125	631,292	1,218,434
	10 mos.	2,383	57,406,339	19,221,532	87,111,429	14,506,951	30,077,643	964,216	45,555,865	2,414,633	94,414,555	108.38	—7,303,127	—10,460,515	—12,126,124	14,359,814
Peoria & Pekin Union	Oct.	.....	30,426	4,949	158,264	33,967	40,233	35	108,458	5,903	188,596	119.17	—30,332	—39,833	—19,258	—25,947
	10 mos.	.....	273,115	41,988	1,298,562	200,679	375,261	2,074	921,536	50,443	1,549,992	119.36	—251,430	—346,430	—252,908	49,743
Pere Marquette	Oct.	2,238	3,533,289	537,224	4,332,742	505,709	915,746	47,895	1,860,018	131,168	3,422,974	79.00	909,768	812,519	590,482	—290,873
	10 mos.	2,233	24,583,520	5,909,218	33,888,564	4,822,107	7,907,756	425,117	15,759,821	1,118,054	30,076,404	88.75	3,812,160	3,137,342	1,063,995	—5,047,520
Perkiomen	Oct.	41	107,055	10,514	121,431	12,592	6,192	13	43,407	853	63,057	51.93	58,374	54,925	48,927	1,428
	10 mos.	41	862,760	111,462	1,027,710	98,465	47,191	199	414,774	3,475	564,280	54.91	462,430	439,566	385,952	—31,946
Philadelphia & Reading	Oct.	1,126	9,137,799	1,030,584	10,583,898	1,023,288	2,172,832	55,493	4,217,899	189,204	7,686,493	72.62	2,897,405	2,670,486	2,341,681	1,240,681
	10 mos.	1,126	61,168,536	9,233,296	74,869,828	9,383,169	21,002,901	568,238	38,273,665	1,723,739	71,190,014	95.09	3,679,813	1,791,901	—935,125	—4,077,420
Philadelphia, Bethlehem & New Eng.	Oct.	10	.....	.....	128,582	20,835	13,192	405	90,643	1,707	126,782	98.60	1,800	—641	—5,042	1,659
	10 mos.	10	.....	.....	1,116,763	161,874	156,713	4,461	786,588	15,474	1,125,110	100.74	—8,348	—20,973	—56,123	—54,052
Pittsburgh & Lake Erie	Oct.	224	3,868,662	[15]327,738	4,655,113	[11]349,737	[13]822,190	32,735	1,403,316	73,390	2,687,127	57.72	1,967,985	1,785,125	1,991,897	1,796,143
	10 mos.	224	22,467,115	[16]2,707,956	27,630,836	[12]5,322,484	[14]10,371,946	201,471	10,604,969	631,001	27,153,342	98.27	477,494	—957,460	1,098,243	—1,857,166
Pittsburgh & Shawmut	Oct.	103	201,079	4,885	209,723	30,388	37,388	1,574	60,413	7,906	137,669	65.64	72,055	71,813	108,915	112,577
	10 mos.	103	1,376,580	51,797	1,443,597	305,084	358,119	15,140	536,374	70,601	1,285,317	89.04	158,281	149,789	515,112	686,216
Pittsburgh & West Virginia	Oct.	63	242,128	12,852	291,664	99,596	48,229	2,251	96,387	8,509	266,567	91.40	25,097	11,835	8,062	41,273
	10 mos.	63	1,688,927	101,815	2,010,265	675,353	521,030	17,059	759,874	92,579	2,176,797	108.28	—166,532	—307,418	—249,594	319,519
Pittsburgh, Shawmut & Northern	Oct.	209	173,153	6,276	180,949	38,789	60,248	1,203	76,329	5,819	182,394	100.80	—1,446	—3,385	23,039	1,144
	10 mos.	209	1,192,110	64,899	1,284,765	321,230	572,554	17,306	639,837	77,989	1,628,966	126.79	—344,201	—363,698	—34,918	—58,780
Port Reading	Oct.	21	149,458	.....	207,774	4,838	17,740	18	95,485	—3,518	114,563	55.14	93,211	81,911	35,826	61,414
	10 mos.	21	1,192,866	.....	1,541,284	178,911	105,354	188	880,913	11,608	1,176,974	76.36	364,309	279,513	—256,346	—812,922
Quincy, Omaha & Kansas City	Oct.	255	103,118	27,480	141,138	39,031	21,897	802	69,458	2,996	134,056	94.98	7,082	1,267	—1,999	22,713
	10 mos.	255	736,462	258,291	1,114,423	450,897	281,676	5,784	645,803	23,985	1,407,337	126.28	—292,914	—333,253	—380,260	—218,810
Richmond, Fredericksburg & Poto'c.	Oct.	117	455,324	354,679	914,262	133,043	162,907	8,253	367,127	32,118	716,377	78.36	197,885	171,753	158,912	—191,434
	10 mos.	117	4,407,295	3,157,400	9,201,085	970,770	1,537,722	74 077	3,847,118	276,654	6,823,719	74.16	2,377,366	2,078,257	1,768,831	—2,451,872
Rutland	Oct.	415	368,500	138,730	607,247	104,680	142,634	7,365	295,048	14,692	566,725	93.33	40,521	17,716	35,736	7,561
	10 mos.	415	2,264,885	1,134,436	4,087,635	834,977	1,150,534	47,285	1,993,581	116,566	4,159,434	101.75	—71,799	—230,147	—106,757	—255,738
St. Louis Merchants Bridge Term.	Oct.	9	.....	.....	507,995	69,884	29,569	913	243,632	9,063	353,061	69.50	154,933	142,912	151,143	149,563
	10 mos.	9	.....	2,889	3,522,204	557,542	614,351	8,850	2,535,383	88,713	3,804,838	108.01	—282,634	—409,716	—384,871	—18,309
St. Louis-San Francisco	Oct.	4,757	6,662,779	2,267,876	9,412,726	1,436,069	2,015,142	77,393	3,520,696	251,161	7,269,591	77.23	2,143,134	1,884,237	1,773,570	124,677
	10 mos.	4,757	51,463,729	21,032,193	76,911,535	13,655,137	17,930,331	694,066	31,914,118	2,341,389	66,353,251	86.27	10,558,284	8,053,013	6,871,403	—5,596,466
St. Louis-San Francisco & Texas.	Oct.	134	151,765	25,012	187,914	69,713	35,877	3,410	113,521	7,452	229,973	122.38	—42,059	—43,946	—79,882	—68,182
	10 mos.	134	1,168,831	194,646	1,443,928	492,469	312,319	21,577	931,082	67,528	1,824,974	126.39	—381,046	—404,019	—731,492	—591,076
Fort Worth & Rio Grande	Oct.	235	116,806	77,621	205,908	107,937	38,223	3,395	112,181	6,904	268,640	130.47	—62,733	—66,690	—86,736	—119,404
	10 mos.	235	826,778	654,546	1,605,552	890,680	316,126	22,344	925,401	71,420	2,225,934	138.64	—622,382	—660,973	—878,864	—890,312
St. Louis Southwestern	Oct.	968	1,737,530	217,990	2,033,979	434,507	311,910	50,122	470,562	71,752	1,351,711	66.46	682,268	626,838	644,840	314,613
	10 mos.	962	14,695,558	1,944,180	17,494,978	2,620,904	2,934,894	431,246	4,701,241	515,241	11,270,150	64.42	6,224,828	5,618,795	5,799,297	3,606,428
St. Louis Southwestern of Texas.	Oct.	807	756,748	181,703	995,427	330,830	244,939	21,967	409,025	36,965	1,042,214	104.70	—46,787	—59,878	—16,672	171,694
	10 mos.	807	5,527,169	1,414,304	7,590,818	2,547,877	2,406,379	172,188	4,061,326	320,800	9,503,416	125.20	—1,912,598	—2,141,564	—1,730,866	—563,195
St. Louis Transfer Ry.	Oct.	6	.....	.....	133,595	11,767	1,301	213	49,664	2,825	65,769	49.23	67,827	67,554	62,139	35,039
	10 mos.	6	.....	.....	1,145,223	96,250	159,662	2,077	582,759	26,116	866,864	75.69	278,359	275,618	204,065	18,460
San Antonio & Aransas Pass	Oct.	736	632,143	147,809	813,369	75,222	124,410	11,408	285,511	27,213	523,485	64.35	289,884	281,187	283,840	399,336
	10 mos.	736	3,280,038	1,181,456	4,852,855	1,075,046	1,085,856	78,884	2,378,612	207,529	4,823,163	99.39	29,692	—109,311	32,193	912,211
San Antonio, Uvalde & Gulf	Oct.	317	73,409	48,542	135,606	29,315	25,803	2,218	65,323	6,364	129,023	95.14	6,583	2,306	—10,833	58,868
	10 mos.	317	780,204	421,979	1,281,385	341,424	240,303	22,621	704,006	60,150	1,368,503	106.80	—87,118	—111,830	—219,688	—68,292
Seaboard Air Line	Oct.	3,563	2,991,915	913,355	4,334,067	445,998	771,808	113,959	2,032,238	163,340	3,558,768	82.11	775,299	639,812	597,840	363,097
	10 mos.	3,563	26,736,777	8,791,990	40,428,692	7,357,402	10,114,687	1,042,382	20,903,988	1,644,430	41,466,761	102.56	—1,038,070	—2,484,932	—3,981,720	—6,156,455
Southern Ry.	Oct.	6,971	9,869,365	3,282,344	14,189,224	2,222,883	2,858,633	215,238	6,357,586	373,761	12,175,509	85.80	2,013,715	1,625,099	1,600,242	669,676
	10 mos.	6,973	82,925,434	30,754,764	126,601,139	17,439,940	24,359,862	1,731,764	57,329,832	3,306,044	105,307,629	83.18	21,193,510	16,996,318	14,234,675	6,287,542
Southern Ry. in Mississippi	Oct.	278	122,660	54,404	190,797	53,302	23,691	4,472	109,260	8,653	199,378	104.49	—8,581	—17,581	—31,990	—34,360
	10 mos.	278	866,771	504,668	1,518,663	613,422	261,363	30,799	913,708	63,822	1,883,115	123.99	—364,452	—461,669	—686,830	—587,424
Southern Pacific Co.	Oct.	7,105	14,565,530	4,682,908	20,860,067	2,341,155	3,125,000	192,761	7,794,225	463,077	14,258,469	68.35	6,601,598	5,683,755	5,564,790	415
	10 mos.	7,098	103,810,655	45,175,341	166,400,434	25,635,063	33,464,496	1,784,311	66,475,682	4,174,969	135,175,318	81.23	31,225,116	21,854,878	21,079,872	—5,101,143
Southern Pacific S. S. Lines	Oct.	.....	972,769	68,513	1,094,743	10,099	180,326	13,163	863,381	31,099	1,098,069	100.30	—3,326	—14,849	—11,639	57,067
	10 mos.	.....	4,707,528	355,885	5,303,766	113,128	3,024,352	142,452	6,586,358	283,588	10,149,879	191.37	—4,846,113	—4,959,362	—4,929,231	—6,496,953

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF OCTOBER AND TEN MONTHS OF CALENDAR YEAR 1920—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Maintenance of: Way and structures.	Equipment.	Operating expenses: Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net after rentals.	Increase (or decr.) comp. with last year.
Arizona Eastern ..... Oct.	383	278,695	60,123	270,705	66,479	52,182	3,889	129,175	25,636	285,113	105.32	85,592	55,195	48,319	—48,488
10 mos.	380	2,543,606	546,794	3,369,653	780,732	485,753	34,677	1,160,208	210,182	2,708,026	80.37	661,628	367,779	258,524	—256,281
Galveston, Harrisburg & San Ant.. Oct.	1,384	2,307,191	559,869	2,974,925	525,000	756,831	[4]2,285	963,144	83,811	2,394,637	80.49	580,288	514,628	378,655	1,400
10 mos.	1,384	14,952,294	4,756,284	21,252,093	4,426,352	5,682,457	369,925	8,252,773	711,867	19,619,396	92.32	1,632,697	843,426	—255,512	—3,184,336
Houston, East & West Texas.... Oct.	190	259,319	62,806	336,003	97,500	53,768	3,149	152,370	8,280	315,067	87.51	20,936	13,100	—4,746	—1,688
10 mos.	190	1,722,832	563,084	2,453,495	874,477	417,116	31,938	1,144,584	67,848	2,535,975	103.36	—82,480	—172,188	—283,274	—567,020
Houston & Texas Central..... Oct.	915	986,993	314,495	1,373,544	275,000	287,986	22,503	499,662	29,608	1,114,031	83.02	259,512	207,950	172,823	—27,432
10 mos.	.....	6,287,151	2,515,868	9,620,229	2,476,000	2,144,466	160,593	4,078,629	277,408	9,135,465	94.96	484,765	—20,296	—233,091	—1,262,461
Louisiana Western ..... Oct.	207	351,270	129,994	508,204	153,156	106,834	11,033	147,966	17,507	441,118	86.80	67,086	32,450	31,188	—126,227
10 mos.	207	2,962,142	1,123,129	4,378,567	1,098,132	813,896	75,339	1,179,846	151,308	3,345,314	76.40	1,033,254	680,874	611,612	—394,862
Morgan's Louis'a & Tex. S. S. Co.. Oct.	400	699,680	196,066	959,389	257,688	249,082	16,885	361,224	32,428	922,664	96.17	36,725	—22,838	—39,038	—231,195
10 mos.	400	6,003,405	1,824,014	8,475,711	1,706,085	1,929,394	122,057	3,154,849	277,207	7,218,248	85.16	1,257,463	737,192	507,467	—123,301
Texas & New Orleans..... Oct.	469	678,928	220,049	985,986	290,000	291,092	10,847	543,171	23,769	1,208,608	122.58	—222,622	—248,775	—282,178	—262,306
10 mos.	469	5,449,733	1,750,899	8,104,727	2,269,732	2,322,914	93,114	3,210,584	221,947	8,545,857	105.44	—441,130	—727,722	—1,014,472	—1,309,762
Spokane International ..... Oct.	165	113,939	22,390	140,388	28,114	12,142	2,884	46,973	6,699	96,696	68.88	43,692	38,431	29,931	—5,524
10 mos.	161	1,044,874	196,708	1,280,584	229,477	105,032	25,234	399,836	54,393	816,755	63.78	463,830	412,090	344,608	120,295
Spokane, Portland & Seattle..... Oct.	549	659,067	200,809	927,553	121,366	128,232	9,314	284,441	26,070	581,572	62.70	345,982	248,960	195,166	—23,100
10 mos.	549	5,036,563	1,954,154	7,594,078	1,626,933	1,026,388	78,742	2,564,580	248,859	5,645,236	74.34	1,948,843	1,010,725	848,151	—729,985
Staten Island Rapid Transit..... Oct.	23	91,878	100,481	219,130	95,444	37,148	1,872	145,081	13,528	293,073	133.74	—73,943	—84,006	—104,147	—89,111
10 mos.	23	791,862	985,854	1,984,578	513,783	342,810	14,892	1,202,870	112,479	2,186,834	110.19	—202,256	—348,042	—547,518	—667,042
Tennessee Central ..... Oct.	292	216,532	58,471	291,882	79,772	72,337	5,451	165,446	12,154	335,160	114.81	—43,278	—49,013	—79,280	—49,615
10 mos.	292	1,733,047	540,381	2,449,481	497,334	518,043	48,256	1,257,773	106,803	2,428,029	99.12	21,451	—35,139	—299,051	97,472
[1]Terminal Railroad Assoc. of St. L.. Oct.	36	.....	—1	511,368	101,732	39,629	969	203,698	11,716	363,204	71.03	148,164	102,597	236,220	46,552
10 mos.	36	.....	8,478	3,894,786	816,360	656,606	10,172	1,830,818	91,656	3,451,270	88.61	443,717	60,638	1,317,491	—71,217
Texarkana & Fort Smith..... Oct.	93	218,754	25,534	255,349	20,016	24,163	4,377	72,602	8,760	129,436	50.69	125,913	117,843	104,310	44,355
10 mos.	93	1,385,446	232,684	1,762,658	222,007	191,919	27,251	611,966	65,025	1,119,002	63.48	643,656	538,653	360,302	139,237
Texas & Pacific..... Oct.	1,946	2,695,980	1,114,550	4,057,781	758,831	730,982	48,084	1,583,788	110,059	3,272,019	80.65	785,762	694,845	579,889	130,840
10 mos.	1,946	20,813,216	10,059,103	33,607,546	6,553,796	7,283,997	398,584	14,893,187	1,002,904	30,554,537	90.92	3,053,009	1,981,673	663,575	—2,412,430
Toledo & Ohio Central..... Oct.	503	1,389,889	74,811	1,544,746	175,753	321,655	10,336	565,564	27,994	1,106,027	71.60	438,719	393,539	460,442	270,721
10 mos.	490	9,289,780	710,306	10,591,491	1,573,731	3,103,840	103,640	4,821,041	233,007	9,869,779	93.18	721,712	301,749	646,046	352,583
Toledo, Peoria & Western..... Oct.	247	138,307	50,982	200,375	40,450	39,557	3,080	98,867	7,877	189,832	94.73	10,542	2,042	12,310	8,166
10 mos.	247	1,020,916	509,944	1,677,039	297,015	434,278	27,916	975,808	72,624	1,807,579	107.78	—130,540	—215,540	—66,314	84,215
Toledo, St. Louis & Western..... Oct.	454	1,059,554	36,657	1,118,618	193,511	181,815	18,782	338,298	15,134	747,538	66.83	371,079	344,929	303,230	177,296
10 mos.	454	8,612,766	364,482	9,404,873	2,025,688	1,864,151	133,492	3,737,220	153,169	7,913,232	84.14	1,491,641	1,186,196	732,313	134,825
Ulster & Delaware..... Oct.	128	95,847	29,946	153,020	33,117	27,069	3,525	95,554	9,029	168,976	110.43	—15,956	—20,968	—24,943	—49,875
10 mos.	128	604,913	377,910	1,249,173	219,255	231,233	28,580	879,409	74,654	1,439,292	115.22	—190,119	—240,135	—282,278	—186,547
[1]Union R. R. (of Penna.)..... Oct.	45	.....	.....	1,286,362	64,923	191,286	523	649,278	8,347	914,357	71.80	372,005	358,505	453,603	505,569
10 mos.	45	.....	.....	8,790,473	880,545	2,149,804	3,801	5,426,495	83,561	8,544,206	97.20	246,267	148,267	860,314	174,461
Union Pacific ..... Oct.	3,614	11,637,891	2,115,287	14,743,231	1,544,220	2,605,901	114,336	4,259,779	354,790	9,140,195	62.00	5,603,036	5,221,099	5,042,637	1,043,695
10 mos.	3,614	77,702,608	18,828,264	108,233,295	17,147,966	20,886,938	882,767	32,754,997	3,172,280	77,452,674	71.56	30,780,621	25,204,451	25,441,532	—3,965,355
Oregon Short Line..... Oct.	2,358	3,547,329	695,495	4,529,174	520,521	591,629	39,400	1,385,161	143,720	2,760,809	60.96	1,769,365	1,625,552	1,611,231	—104,959
10 mos.	2,353	27,355,381	6,508,846	37,197,148	5,784,658	5,965,477	333,388	11,899,476	1,293,700	26,066,034	70.08	11,131,114	8,031,255	8,288,894	—432,811
Oregon-Wash. R. R. & Nav. Co.. Oct.	2,223	2,226,879	685,601	3,145,811	780,731	536,123	49,959	1,341,267	152,934	2,900,639	92.21	245,172	173,771	120,990	—431,946
10 mos.	2,222	18,659,188	6,411,914	27,676,513	5,633,339	4,900,070	416,690	11,830,589	1,316,588	24,461,596	88.38	3,214,917	1,439,787	952,264	—2,290,057
St. Joseph & Grand Island..... Oct.	258	365,797	40,028	425,232	91,934	45,297	3,177	174,901	16,991	334,367	78.63	90,864	81,578	72,758	93,550
10 mos.	258	2,266,334	375,299	2,849,595	941,538	452,946	24,714	1,468,368	142,795	3,049,514	107.02	—199,920	—326,803	—379,509	—383,331
Utah ..... Oct.	98	210,647	813	212,550	31,220	31,952	322	49,426	3,937	116,856	54.90	95,695	91,262	83,786	19,556
10 mos.	98	1,599,792	7,802	1,612,594	211,466	304,393	2,215	370,308	30,579	918,960	56.99	693,634	626,513	573,851	260,861
Vicksburg, Shreveport & Pacific.... Oct.	171	304,164	107,540	437,672	113,607	87,929	8,965	182,077	13,996	410,391	93.77	29,281	15,220	1,919	—26,774
10 mos.	171	2,408,761	999,913	3,704,544	740,319	727,715	18,212	1,478,316	123,566	3,186,183	86.01	518,362	383,394	289,617	—87,356
Virginian ..... Oct.	523	1,821,124	82,203	2,058,218	230,310	381,348	10,188	620,728	37,666	1,277,801	62.08	780,417	609,724	664,615	183,002
10 mos.	523	12,508,818	712,021	14,555,289	1,765,301	2,928,504	83,756	5,272,467	307,016	10,338,995	71.03	4,216,294	3,512,166	4,042,917	1,830,877
Wabash ..... Oct.	2,472	4,801,912	1,029,682	6,282,611	931,446	1,161,419	121,368	2,795,088	173,163	5,213,304	82.98	1,069,307	938,284	662,397	—78,497
10 mos.	2,472	34,788,655	9,295,874	48,556,406	8,691,212	12,476,799	934,142	24,672,983	1,594,421	48,690,041	100.28	—133,635	—1,429,368	—4,415,788	—5,361,190
West Jersey & Sea Shore..... Oct.	361	809,285	469,050	1,349,428	284,486	310,793	13,430	659,268	27,998	1,305,041	96.71	44,387	5,251	—48,069	60,385
10 mos.	361	3,674,156	7,465,347	11,985,624	2,695,554	2,560,484	112,027	6,161,015	262,379	11,876,615	99.09	109,009	—370,182	—722,665	—1,197,492
Western Maryland..... Oct.	797	2,015,224	108,117	2,206,432	229,373	494,405	31,896	920,366	59,350	1,753,404	79.47	453,028	398,028	447,208	318,301
10 mos.	776	13,956,030	1,038,273	16,004,506	3,244,705	5,217,181	394,460	6,886,580	519,666	16,433,083	102,68	—428,577	—924,977	—4,434	—207,683
Western Pacific ..... Oct.	1,011	1,430,712	242,225	1,744,342	263,639	273,063	31,910	600,074	48,101	1,245,243	71.39	499,099	432,192	425,701	—542,535
10 mos.	1,017	10,470,291	2,229,588	13,399,769	2,267,282	2,071,175	279,300	4,721,375	380,217	9,990,815	74.56	3,408,954	2,790,773	2,948,810	261,450
Western Ry. of Alabama..... Oct.	133	157,744	66,707	242,084	45,819	45,327	8,125	105,176	9,718	217,890	90.01	24,194	15,119	17,525	—34,379
10 mos.	133	1,315,177	772,703	2,325,270	363,909	501,672	61,660	884,525	83,464	1,931,987	83.09	393,284	323,827	331,828	—106,671
Wheeling & Lake Erie..... Oct.	511	1,757,266	86,309	2,032,726	351,746	527,772	13,124	763,928	35,342	1,697,333	83.50	335,393	261,859	139,207	—104,839
10 mos.	511	12,464,977	717,712	14,491,916	2,448,876	3,663,308	142,469	6,216,052	328,180	12,837,655	88.58	1,654,260	971,646	89,721	—1,195,402
Wichita Valley ..... Oct.	256	110,751	54,041	172,192	31,466	14,232	52	72,599	1,475	119,804	69.58	52,389	47,054	28,893	—46,242
10 mos.	256	908,216	424,812	1,420,014	370,151	148,874	900	622,802	15,898	1,158,522	81.59	261,492	207,005	55,477	—124,042

[1] $30,013.85 included for Pullman surcharge. [2] $100,000.00 war tax. [3] $55,013.85 included for Pullman surcharge. [4] $1,040,000.00 war tax. [5] Includes $118.74 surcharge upon passengers in sleeping and parlor cars, month. [6] Includes $263.50 surcharge upon passengers in sleeping and parlor cars, cumulative. [7] Includes Pullman surcharge collection for the month of October, 1920, $24,463.37, and $45,476.90 for the ten months ending October 31, 1920. [8] Back time included in operating expenses, $3,043.96. [9] Includes $15,000.00 surcharges upon passengers in sleeping and parlor cars. [10] Includes surcharge $659.15. [11] Item 10 includes "Equalization of maintenance" applicable to month of October, 1920, $231,953.40. [12] Item 10 includes "Equalization of Maintenance" applicable to period March 1, 1920, to October 31, 1920, $1,010,780.85. [13] Item 11 includes "Equalization of Maintenance" applicable to month of October, 1920, $316,745.94. [14] Item 11 includes "Equalization of Maintenance" applicable to period March 1, 1920, to October 31, 1920, $534,081.94. [15] Item 2 includes Pullman surcharge for month of October, 1920, $3,037.51. [16] Item 2 includes Pullman surcharge for period August 1, 1920, $8,260.41.

Railway Officers

Financial, Legal and Accounting

F. F. Clarke has been appointed chief land surveyor of the Canadian National, with headquarters at Toronto, effective December 1. Mr. Clarke will report to the legal department.

Robert Crosbie, whose appointment as comptroller of the Spokane, Portland & Seattle was announced in the *Railway Age* of November 26 (page 953), was born May 2, 1882, at Dalbeattie, Scotland. He was educated in the public schools, high school and business college at Dalbeattie and first entered railway service with the Glasgow & South Western (Scotland) in 1889. In 1906 Mr. Crosbie came to Montreal to become interline traffic accountant for the Grand Trunk. From 1908 to 1910 he was a general accountant for the Delaware, Lackawanna & Western at New York and Scranton, Pa. In 1910 he became an accountant for the Spokane, Portland & Seattle at Portland, Ore., and the following year was placed in charge of general accounts. In 1918 he was appointed assistant comptroller and, during federal control, was given full charge of corporate accounts. He remained in this position until his appointment as comptroller.

R. Crosbie

Executive

R. C. Vaughan, assistant to the president of the Canadian National, has been appointed vice-president in charge of purchase and stores, with headquarters at Toronto, effective December 1.

P. C. Byrne, whose election as vice-president and general manager of the Alabama & North Western was announced in the *Railway Age* of November 19 (page 905), was born March 2, 1885, at Bluff Springs, Fla. He was educated at the Barton Academy and at a business college. He began his railroad career in 1906 as a stenographer for the Central of Georgia at Mobile, Ala. From 1907 to 1909 he was chief clerk to a superintendent of the Gulf, Mobile & Northern. During the following year he was employed by the Atlanta Joint Terminal as a stenographer and as a telegraph operator. In 1910 he entered the service of the Alabama, Tennessee & Northern as secretary to the president and the same year was appointed chief clerk. In 1912 he was promoted to division superintendent and in 1913 to general superintendent of the Alabama & North Western, which position he held at the time of his recent election.

Albert C. Mann, whose election as vice-president in charge of purchases and stores of the Illinois Central, with headquarters at Chicago, was announced in the *Railway Age* of December 10 (page 1046), was born at Effingham, Ill., on September 1, 1881. He entered railway service in January, 1900, as a stenographer in the office of the commercial agent of the Illinois Central at St. Louis, Mo., and soon became bill of lading clerk. In February, 1902, he was appointed secretary to the general agent, and four months later was transferred to Chicago as secretary and chief clerk to the coal traffic manager. In June, 1904, Mr. Mann was assigned to the purchasing department as secretary to the purchasing agent, and was subsequently price clerk and chief clerk in that department. He was promoted to assistant purchasing agent in January, 1912, but left the service of the Illinois Central in May of that year, when appointed purchasing agent of the Central of Georgia, with headquarters at Savannah, Ga. He returned to the Illinois Central in September, 1913, to become purchasing agent, a position which he held until March, 1918. At that time he accompanied C. H. Markham, of the Illinois Central, when the latter was appointed director of the Southern Region by the United States Railroad Administration, being connected with the department of purchases and stores of the Southern Region. Since July 1, 1919, Mr. Mann has been vice-president of the International Steel Corporation, with headquarters at New York.

Operating

F. H. Wagner has been apointed assistant trainmaster of the Philadelphia & Reading with headquarters at Philadelphia, Pa.

W. H. Ogborn has been appointed general manager of the Dayton, Toledo & Chicago, with headquarters at Dayton, Ohio, effective December 15.

H. C. May, general manager of the Chicago, Indianapolis & Louisville with headquarters at Lafayette, Ind., has resigned, effective December 15.

S. Williams has been appointed trainmaster on the Los Angeles & Salt Lake, with headquarters at Las Vegas, Nev., succeeding **J. P. Fitzpatrick,** who has been assigned to other duties.

R. King, acting superintendent on the Canadian National, with headquarters at Saskatoon, Sask., has been appointed superintendent, with the same headquarters, succeeding **W. R. Munro,** who has been transferred, effective December 3.

J. A. Moran, assistant superintendent on the St. Louis-San Francisco, with headquarters at Birmingham, Ala., has been transferred to Neodesha, Kansas, succeeding E. E. Carter, whose promotion to superintendent of terminals, with headquarters at West Tulsa, Okla., was announced in the *Railway Age* of October 15 (page 679).

R. B. Turney, division superintendent on the Michigan Central, with headquarters at Detroit, Mich., has been appointed passenger trainmaster, with the same headquarters, effective November 4, succeeding E. P. Herlehy, who has been assigned to other duties. **M. T. Wright,** superintendent of Detroit passenger terminal, with headquarters at Detroit, succeeds Mr. Turney, the Detroit passenger terminal and Detroit division having been consolidated.

H. H. Vance, superintendent of the Southern with headquarters at Birmingham, Ala., has been promoted to general superintendent of the Southern district with the same headquarters, succeeding **J. W. Wassum,** who has been transferred as general superintendent of the Southeastern district with headquarters at Macon, Ga. Mr. Wassum succeeds **F. P. Pelter,** who has been transferred to the Southwestern district with headquarters at Chattanooga, Tenn., succeeding W. T. Caldwell, resigned. **O. K. Cameron,** superintendent of the Memphis division with headquarters at Sheffield, Ala., succeeds Mr. Vance, and **L. H. Woodall,** terminal superintendent at Jacksonville, Fla., succeeds Mr. Cameron. These appointments are effective December 1.

Traffic

R. H. Ludham has been appointed commercial agent of the Norfolk & Western, with headquarters at Richmond, Va.

V. Schaffenburg, assistant general freight agent on the Texas & Pacific, has resigned to become traffic manager of the Myles Salt Company, Ltd. Mr. Schaffenburg's new headquarters will be at New Orleans, La.

E. E. Shumate has been appointed commercial agent of the Norfolk & Western, with headquarters at Winston-Salem, N. C., effective November 1.

V. L. Campbell has been appointed general agent of the New York, New Haven & Hartford at Brockton, Campello and Montello, Mass., effective December 10.

R. Macsherry has been appointed assistant general freight and passenger agent of the Lehigh & New England with headquarters at Bethlehem, Pa. **M. A. Gangawer** has been appointed chief of the tariff bureau. These appointments are effective December 15.

J. L. Scott, general agent on the Western Pacific, with headquarters at Salt Lake City, Utah, has been transferred to San Francisco, Cal., succeeding **R. V. Crowder,** who has resigned to become associated with the Los Angeles Steamship Company, effective December 10. **E. R. Jennings** succeeds Mr. Scott.

A. J. Dickinson, assistant general passenger agent on the Great Northern, with headquarters at St. Paul, Minn., has been promoted to passenger traffic manager, with the same headquarters, succeeding C. E. Stone, whose retirement was announced in the *Railway Age* of October 22 (page 728). **E. H. Wilde,** assistant general passenger agent, with headquarters at St. Paul, has been promoted to general passenger agent, with the same headquarters, and **F. T. Holmes,** general agent, with headquarters at Kansas City, Mo., succeeds Mr. Wilde. The appointments were effective December 1.

Engineering, Maintenance of Way and Signaling

R. W. Williams, assistant to the chief engineer of the Southern with headquarters at Washington, D. C., has been appointed engineer of maintenance of way and structures of the Southwestern district with headquarters at Chattanooga, Tenn., succeeding M. J. Connerton, resigned, effective December 1.

George Cottingham, Jr., roadmaster on the Northern Pacific, with headquarters at Carrington, N. D., has been promoted to engineer maintenance of way of the Eastern division of the Chicago Great Western, with headquarters at Chicago, effective December 7, succeeding H. Wilson, whose appointment as trainmaster on the Denver & Rio Grande, with headquarters at Denver, Colo., was announced in the *Railway Age* of October 22 (page 728).

H. G. Morgan, office engineer in the signal department of the Illinois Central, with headquarters at Chicago, has been promoted to signal engineer, effective December 1, succeeding **W. M. Vandersluis,** who has been appointed secretary of the Illinois Central Electrification Commission—Chicago Terminals. Mr. Morgan was born in Huntington, Ind., in 1883. He was educated at Purdue University, receiving a degree in electrical engineering in 1904. His first technical experience was with the Bell Telephone Company, where he held a position as service inspector for three years. In 1907 he entered the service of the Illinois Central as a draftsman in the signal department, remaining until 1909, when he accepted an appointment as chief draftsman in the signal department of the Chicago & North Western. In 1910 he was appointed assistant engineer with the General Railway Signal Company at Rochester, N. Y., a position which he held until 1913. In that year he returned to the Illinois Central as office engineer in the signal department, where he served until 1914, when he was transferred to the valuation department as pilot signal engineer. In September, 1917, he was promoted to signal engineer to fill a vacancy left by W. M. Vandersluis, who had entered military service. Upon the return of Mr. Vandersluis from service Mr. Morgan resumed his duties as office engineer.

Purchasing and Stores

J. B. Fowler has been appointed division storekeeper on the Pennsylvania, with headquarters at Fort Wayne, Ind., effective December 1.

H. B. Smith has been appointed fuel agent of the Kansas City Southern, with headquarters at Kansas City, Mo., effective December 10, succeeding B. B. Brain, who has been promoted to purchasing agent.

L. Lavoie, assistant general purchasing agent of the Canadian National with headquarters at Toronto, has been appointed general purchasing agent with the same headquarters, effective December 1, succeeding **E. Laugham,** who is retiring from active service.

Special

A. L. Green, who has been appointed special representative, freight claim prevention, American Railway Association, with headquarters at Chicago, effective December 1, was employed in the freight claim department of the New York Central for 20 years previous to his recent appointment. When the government took over the railroads Mr. Green was serving as assistant to the freight claim agent of the New York Central, and during the period of federal control he served as secretary to the regional director's Committee on Freight Claims, and as secretary of the Association of Railroad Chiefs of Police. Subsequently he was associated with the Eastern Claim Conference, as secretary, and served as regional claim agent of the United States Railroad Administration, with headquarters at New York.

J. Marshall, who has been appointed special representative, freight claim prevention, American Railway Association, with headquarters at Chicago, effective December 1, was born in April, 1879, at Collinsville, Ill., and entered railroad service in 1891 as a messenger in the commercial office of the Missouri, Kansas & Texas at St. Louis, Mo. In 1896 he was transferred to the local freight office of the Katy, where he served during the next seven years as press boy, tracer clerk, check clerk and chief claim clerk. In December, 1904, Mr. Marshall was made claim investigator in the freight claim department, and later was promoted to chief of the lawsuit and live stock claim bureau. In February, 1909, he was appointed traveling freight claim agent, with headquarters at Parsons, Kan., a position which he held until January, 1914, when he was made freight claim agent for the Texas lines and transferred to Dallas. Another promotion, in April, 1917, made Mr. Marshall superintendent of claim prevention of the system, with headquarters at Dallas. When the system was divided between separate federal managers during government control, he resumed his duties as freight claim agent of the Texas lines and was serving in this position at the time of his recent appointment.

Fred E. Winburn, who has been appointed special representative, in freight claim prevention, for the American Railroad Association, with headquarters at Chicago, effective December 1, was born at Gainesville, Ga., on May 28, 1874, and entered railroad service in December, 1893, in the local freight agency of the Nashville, Chattanooga & St. Louis at Atlanta, Ga. In January, 1904, he entered the office of the freight claim agent of the Atlanta & West Point, and was promoted to freight claim agent of that road in 1908. He served in that position until January, 1914, when he was promoted to general claim agent of the Atlanta & West Point, the Western of Alabama, and the Georgia. When the railroads were placed under government control, Mr. Winburn was made assistant general claim agent, with jurisdiction over the Atlanta, Birmingham & Atlantic, the Atlanta & West Point, the Western of Alabama, the Georgia, and the Charleston & Western Carolina. When the roads were returned to private control he was appointed auditor of the Atlanta & West Point and the Western of Alabama. Mr. Winburn served as secretary of the Southeastern Claim Conference from January, 1908, until 1918. He was elected president of the Freight Claim Association in June, 1917, and served in that capacity until October 1, 1918. He was also a member of the Committee on Marking, Packing and Handling of Freight of the American Railway Association, and a member of the executive committee of the American Perishable Freight Association.